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PROCEEDINGS

OF THE

Seventh Annual Convention

OF THE

American Association
of Manufacturers of
Sand-Lime Products

* *

Held at Hotel Wayne, Detroit, Michigan
December 6 & 7, 1910

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BY
AMERICAN ASSOCIATION OF MANUFACTURERS OF
SAND-LIME PRODUCTS.

Companies Represented at the Convention.

HUMMELSTOWN BROWNSTONE CO., Waltonville, Pa. S. O. Goho.

AMERICAN CLAY MACHINERY COMPANY, Willoughby, Ohio. L. W. Penfield, W. J. Carmichael, P. L. Simpson.

CRUME BRICK COMPANY, Dayton, Ohio. Wm. H. Crume.

BELT LINE BRICK COMPANY, Minneapolis, Minn. Walter Godart.

SAVANNAH BRICK WORKS, Savannah, Ga. H. B. Skeele.

RED WING BRICK COMPANY, Red Wing, Minn. John J. Bovy.

ROCHESTER COMPOSITE BRICK COMPANY, Rochester, N. Y. Homer Knapp and W. M. Burchfield.

BUFFALO SANDSTONE BRICK COMPANY, Buffalo, N. Y. W. E. Plummer, Jr., and F. W. Christian.

ROCKAWAY BRICK COMPANY, Rockaway, N. J. E. M. Loewenthal.

FREMONT GRANITE BRICK COMPANY, Fremont, Neb. A. D. Sears.

TORONTO INDESTRUCTIBLE BRICK COMPANY, Toronto, Canada. F. B. Allan and L. S. Prosser.

SAGINAW SANDSTONE BRICK COMPANY. John C. Reinke.

GRANDE BRICK COMPANY. H. O. Joseph and Wm. E. Joseph, and J. L. Jackson.

U. S. BUREAU OF STANDARDS, Pittsburgh, Pa. Warren E. Emley.

FLINT SANDSTONE BRICK COMPANY, Flint, Mich. E. R. Wood, Herman Irwin and ——— Reichert.

MANITOBA PRESSED BRICK COMPANY, Winnipeg, Man. Wm. Findlay.

BRANDON SANDSTONE BRICK COMPANY, LTD., Brandon, Manitoba. H. J. Clarry.

BERG MACHINERY MANUFACTURING COMPANY, Toronto, Canada. A. Berg and F. H. Strong.

SILICA BRICK & LIME COMPANY, Victoria, B. C. F. B. Warren.

WOODVILLE WHITE LIME COMPANY, Toledo, Ohio. J. J. Urschel.

SIBLEY BRICK COMPANY, Sibley, Mich. H. G. Field and George R. Rogers.

L. S. Anderson, Detroit, Mich. (Visitor.)

Lewis Buckheit, Mitchell, Ind. (Visitor.)

F. K. Irvine, Chicago, Secretary.

OFFICERS — 1910-11

President, - S. O GOHO, Waltonville, Pa.

Vice-President, WM. D. SCHULTZ, Brantford, Ont. Can.

Secretary, - W. E. PLUMMER, JR., Buffalo, N. Y.

Treasurer, • JOHN L. JACKSON, Saginaw, Mich.

EXECUTIVE COMMITTEE.

Eastern District — E. M. LOEWENTHAL, Rockaway, N. J.
Southern " — H. B. SKEELE, Savannah, Ga.
Central " — L. W. PENFIELD, Willoughby, Ohio.
Western " — WALTER GODART, Minneapolis, Minn.
Canadian " — E. B. ALLAN, Toronto, Ont. Canada.

SEVENTH ANNUAL CONVENTION

FIRST SESSION

Tuesday, December 6th, 1910.

The opening session of the Convention was called to order by President S. O. Goho, at 10 o'clock, A. M., with following address:

Gentlemen: There should be something of inspiration for the members of this Convention individually and collectively in meeting in this magnificent city of Detroit. There is something energizing and vitalizing in the very atmosphere of the Old Northwest. Some of you can recall the old text-book of geography which we used as boys at school in which on the map of the United States a large portion of the Southwest bore the legend "The Great American Desert." The same text-book showed that this State in which we are meeting was taken up largely by almost impenetrable forests given over to hunters and trappers. A little more than a single generation has seen The Great American Desert redeemed and made to bloom as a rose. It is today divided into thousands of fertile farms, and tilled by a contented and prosperous people.

A single State carved from that desert, in the year 1909 produced a corn crop alone exceeding in value the output of all of the gold mines of the United States, including Alaska, for the same year.

The same energy, enterprise and courage that have redeemed The American Desert have changed this State. Man, the mighty magician, waved his wonder-working wand, and cities and towns arose like an exhalation.

When the historian one hundred years hence, with the proper perspective, comes to write the history of the world in the Nineteenth Century, the one fact which will stand out mountain-high above everything else, is the marvelous industrial development of this continent. No doubt various causes will be given for it, but back of it all the primary cause is the spirit in which the pioneers attacked the conquest of the new world.

They left the old world because the old world conditions had become burdensome beyond their ability to bear. They came to the new world eager for new things. The fact that a thing had never been done was the best reason in the world for their trying to do it. The fact that a thing had always been done in a certain clearly defined way, was the best reason in the world for them to try to do it in some other more efficient, or more economical manner.

That spirit has come down to the present day, and it survives nowhere on this continent more strongly than in the Old Northwest. For that reason, I say, there should be something inspiring to us in meeting here. We, too, are pioneers, not in a new land, but in a new industry. And I venture to say there are some of us here who will bear witness that the woods are full of Indians. Accepting the army dictum that the only good Indian is a dead Indian, we may truthfully say, that most of our Indians have already become saints, and that the rest of them are in a fair way to acquire goodness.

In the development of every industry there are three stages, that may and indeed do widely overlap. The first stage is when the knowledge regarding the industry is scattered, indefinite, vague and chaotic. We have long since passed that stage. The second stage is when the knowledge regarding the industry becomes definite, systematic, in short, scientific. We are well along in that stage, and into the third overlapping stage, which we may call the era of improvement; an era, by the way, which has no farthest boundary, and because of the fact that it has no farthest boundary, there is use for this Association.

If we could be satisfied that we knew all about sand-lime, if the last word had been said on the subject, this Association might well sing the Doxology and adjourn without day.

If you were to take a brick made by the ancient Babylonians,—and no doubt the ancient Babylonians thought they knew all that anyone would ever know about brick-making,—and place it side by side with a modern hydraulic fireflashed brick, the two would resemble each other only in their shape and the uses to which they are put. So far as strength, durability and artistic finish are concerned, the modern brick is thousands of years better than the Babylonian product, as it ought to be; and it is not unreasonable to suppose that the sand-lime brick-maker of one hundred years hence will look back upon our product, and our processes with much the same feeling of mingled pity and amusement with which we regard the Babylonian product.

As to the way in which these improvements are to be worked out, an illustration will give you my thought. Probably the greatest inventor the world has ever known is a man, who, as a youth, worked as a newsboy on the trains running into and out of the city of Detroit—Thomas A. Edison. For his laboratory at Menlo Park he has ransacked every quarter of the globe until you can find there a little of about everything that has come under the notice of civilized man. He desires a certain substance to produce a certain result. He does not sit down and wait for inspiration. With a corps of trained assistants he sets to work upon the materials in his laboratory, testing them out one by one under varying conditions, and in varying combinations. As the tests are made, and records are kept, the field of research is narrowed, until finally the right material is found and the world is electrified by the announcement of some new discovery, or invention that adds untold millions to the nation's wealth.

Those who are ignorant of, or indifferent to the indefatigable patience with which the tests have been made, acclaim the genius of the discoverer, or inventor, whose genius consists simply in this, a well-balanced brain, backed by an infinite capacity for taking pains. And if this Association, in its meeting here this week, gives us a few new ideas to take home and try out, it will have performed its proper function, and will mark another milestone in our advance to better things.

In every meeting of an organization of this sort there are two programs. The one program is before you in print, and I trust that the various items on it coming up for discussion will furnish pleasure and profit for us. The other program may be denominated the program of the lobby; and how much good you get out of that depends entirely upon yourselves.

There is one organization that I know of, which I need not name here, that has one striking feature. If you, as a member of that organization, wearing its badge, were to meet some stranger wearing a similar badge, no matter how dignified he might look, he might even seem as frigid as the North Pole, you would have no hesitation in stepping up and putting your hand familiarly on his shoulder, and saying, "Hello, Bill." And it would go. During the time we are together here, let our badge have a similar function. If you see anyone here who looks as if he knew anything that you ought to know, give him the grand hailing sign, and put your pumps into action.

Gentlemen, I trust we will have a pleasant and successful meeting here. The report of the Secretary.

REPORT OF THE SECRETARY.

This has been an exceptionally good business year for the manufacture of sand lime brick, if the reports which have been received by our secretary are to be taken as a faithful mirror of the trade. This is certainly more correct as applying to members of the American Association than to those who are without the fold. That the effect of membership and the active participation in these meetings is beneficial and translatable into dollars on dividend checks, the majority of you can surely testify.

The abridged minutes of the last three conventions were published after more than careful revision, and it came within the appropriation. Naturally where such extensive cutting had to be done the reports were not altogether satisfactory, either to the committee or to the members, but it was the best that could be done under the circumstances, and for that very reason no little task to the members of the committee who had it in hand. I will not presume upon the reports of the District Executives, which I am sure will prove deeply interesting later on in the program, for I am previously advised of the gist of a number of these.

FRED K. IRVINE,
Secretary.

President Goho: We will now hear the report of the Treasurer.

Treasurer Plummer read the following report:

REPORT OF THE TREASURER.

Buffalo, December 1, 1910.

W. E. Plummer, Jr., Treasurer.

To American Association of Manufacturers of Sand-Lime Products, Dr.

1909.		
Dec.	6—Balance 1909 account	$211.10
"	6—Hummelstown B. Co	10.00
"	6—Saginaw S. B. Co	10.00
"	6—Am. S. B. Mach'y Co	10.00
"	6—Lehigh C. W. & A. Wks	10.00
"	6—Rockaway B. C.	10.00
"	6—Buffalo S. B. Co	10.00

Dec,	6—Belt Line B. Co	**10.00**
"	6—Paragon P. Co	**15.00**
"	6—Montana G. B. Co	**35.00**
"	6—Savannah B. Wks	**10.00**
"	6—Sioux Falls P. B. Co	**20.00**
"	6—Sebawaing S. B. Co	**10.00**
"	6—Crume B. Co	**10.00**
"	6—American Clay Machinery Co	**10.00**
"	6—Silica Brick & Lime Co	**45.00**
"	6—Penbryn B. Co	**10.00**
"	6—"Brick"	**20.00**
"	6—Berg Machinery Co	**10.00**
"	6—Toronto I. B. Co	**20.00**
"	6—Rochester Composite B. Co	**10.00**
"	6—Sandstone B. Co	**20.00**
"	6—Wiebe. Eng. Co	**20.00**
"	6—Schultz Bros.	**10.00**
"	6—Sandstone B. Co.	5.00
"	6—Hummelstown B. Co.	5.00
"	6—Rockaway B. Co.	5.00
"	6—Sioux Falls P. B. Co	5.00
"	6—Buffalo S. B. Co	5.00
"	6—Toronto I. B. Co.	5.00
"	6—Penbyrn B. Co.	5.00
"	6—Schultz Bros.	5.00
"	6—Rochester Comp. B. Co	5.00
"	6—Berg Machinery Co.	5.00
		$606.10
1910.		
Jan.	14—Dyett S. L. B. Co	15.00
"	14—Disston & Sons	15.00
"	15—Am. Clay Machinery Co	5.00
"	15—Grande Brick Co	5.00
"	15—Saginaw S. B. Co	5.00
"	15—Am. S. B. Machinery Co	5.00
"	20—Savannah B. Co.	5.00
"	20—Sebawaing S. B. Co	5.00
"	20—Manitoba P. B. Co	15.00
"	21—Wiebe Eng. Co	5.00
Feb.	14—Lehigh C. W. & A. Co	5.00
"	21—Montana P. B. Co	5.00
Mch.	22—Flint S. B. Co	15.00
May	24—Fremont G. B. Co	5.00
July	18—Bond S. B. Co	15.00

Sept. 27—Silica B. & Stone Co	9.90
" 27—A. J. Reynolds	1.23
	742.23
Credits (Vouchers Attached)—	
1910.	
Jan. 3—F. K. Irvine	$200.00
" 3—Francis Pub'g. Co	272.64
" 3—H. O. Duerr	26.00
Aug. 15—Franklin Ptg. Co.	29.19
Oct. 4—Franklin Ptg. Co.	176.90
Dec. 1—Balance on hand	$37.50
	$742.23

W. E. PLUMMER, JR.,
Treasurer.

The reports of Secretary and Treasurer were referred to the Auditing Committee.

Mr. Skeele: I move that the constitution and by-laws be so amended that the dues of foreign members be fixed at Ten Dollars per year, and that for this present year the portion of their dues in excess of Ten Dollars be remitted.

The motion was duly seconded and carried.

The President here announced the appointment of the following committees:

Joint Committee on Auditing and Ways and Means: William H. Crume, L. W. Penfield, E. M. Lowenthal.

Committee on Nominations: H. B. Skeele, F. B. Allen, Walter Godart.

Committee on Resolutions: W. J. Carmichael, A. D. Sears, W. M. Burchfield.

President Goho: Another committee that is not mentioned on the program is the Committee on Banquet. With your consent I will appoint as such a committee, W. E. Plummer, Jr., John J. Bovy, J. L. Jackson.

President Goho: One of the most interesting features of our program last year was our question-box. It brought forth a great deal of discussion which was of considerable profit to the members. If you have any questions that you desire to have answered, we will try to find someone in the Association who is willing to wrestle with them and do the best he can to answer them. I cordially invite you to submit to the Secretary any and all questions pertaining to our industry which you wish answered, and at the proper time they will be submitted to the members of the Convention for discussion and answer.

Another matter I wish to bring to your attention: For some time we have been trying to interest the United States Government in the matter of sand-lime brick. At our Washington convention we appointed a committee who waited upon some of the officials there, and endeavored to create sentiment for sand-lime brick in the bureaus at Washington. Now, we have with us this morning a gentleman from the lime section of the United States Bureau of Standards at Pittsburg, Mr. Warren E. Emley.

The Government has been making an elaborate series of tests of building material at the Pittsburg laboratory, and this gentleman is with us today to learn anything he can regarding sand-lime brick that will be useful in making these tests, and in formulating a report on the sand-lime brick industry. He desires the privilege of the floor. I told him I would bring the matter to the attention of the Association. I believe it would be well to have him with us at the discussions at this meeting.

Mr. Plummer: I move that Mr. Emley be allowed the privileges of the floor at this meeting.

The motion was seconded and duly carried.

Mr. Skeele moved that each member, in addition to the one copy of the published proceedings of the fourth, fifth and sixth annual conventions, to which he is entitled, be privileged to purchase for his own use, additional copies, not to exceed six, at a price of 35 cents per copy.

The motion was seconded by Mr. Jackson and duly carried.

Upon motion the Convention adjourned until 2:00 o'clock P. M.

SECOND SESSION

Tuesday, December 6th, 1910.

The Convention was called to order by the President.

President Goho: I am in receipt of a letter from Mr. H. O. Duerr expressing his regret that he is unable to attend this meeting, and extending to the Association his best wishes for a successful and prosperous meeting.

Gentlemen of the Convention, I desire to introduce to you Mr. Warren E. Emley, of the United States Bureau of Standards, to whom the Association has extended the courtesy of the floor.

Mr. Emley: Mr. President and Gentlemen of the Convention, I desire to thank you for your courtesy.

For the past four or five years the Government has been doing a great deal of testing of materials. It was found necessary at first because the Government is a great consumer of structural materials. Consequently laboratories have been established and men employed to make the tests as the field has broadened year by year. Under the geological survey we were permitted to make tests for Government work only. Now, however, the structural material work has been entrusted to the Bureau of Standards and we are authorized to make tests for private individuals or corporations. But the policy is that no test shall be made in competition with regular laboratories throughout the country. That is, any test we are asked to make which no other laboratory is asked to make, we are authorized to conduct, but for ordinary machine-strength tests or chemical analysis we would rather refer you to some commercial laboratory. It has been necessary to devise tests, and in order to do this a thorough study of the whole subject became necessary, and the Bureau of Standards now has a trained corps of men along this particular line. They have acquired knowledge from a scientific, and also from a practical standpoint, and they are, therefore, acting now in an advisory capacity. That is, they are a board of consulting engineers, and if anyone in the brick industry, or the lime industry, gets into trouble, he writes to the Bureau of Standards, and we try to help him out. That is one of the things we are there for. Now, we cannot do anything unless you are willing to co-operate with us. We have the men who have the training, and we have the engineers, but in order to get at the practical end of it, we have to co-operate with the manufacturers.

I thank you for your courtesy, and hope you will co-operate with us in the future, and that you will help us so that we may be able to help you.

Mr. Plummer: Mr. President, we have with us a former active member of the Association, who is not at the moment engaged in the sand-lime brick industry, Mr. L. S. Anderson, of Detroit. I move that the courtesy of the floor be extended to Mr. Anderson.

The motion was duly seconded and carried.

President Goho: The first thing on our program this afternoon, is:

"THE MANUFACTURING AND SELLING CONDITIONS COMPARED FROM THE LOCAL STANDPOINT."

We will hear from Mr. Godart.

Mr. Godart: When this subject was assigned to me it occurred to me that each man knew best the local conditions under which he was working, both as to manufacturing and selling, and to get a general idea of what the conditions were all over the country, I outlined a number of questions as to manufacturing conditions, and selling conditions, and have sent them to several members, and after giving you a resume of our conditions at Minneapolis, I shall ask some of the other members to report on conditions in their section of the country. The list of questions which I sent out is as follows:

MANUFACTURING CONDITIONS.

1. General construction of plant and method of operation.
2. Yearly output.
3. Number of plants, clay and sand-lime, in immediate vicinity and competition.
4. Their yearly output.
5. Number of months operating.
6. How brick are transported, wagon or railroad, etc.

SELLING CONDITIONS.

1. How sand-lime brick are regarded by architects, compared with local clay brick.
2. How regarded by contractors compared with local clay brick, with comparative price obtained.
3. What manner of competition used against sand-lime brick.
4. What special means, if any, were necessary in the introduction of sand-lime brick. Are they still necessary.
5. General selling conditions. Average length of time taken by contractors in payment. Is discount given?
6. Lien law.

Our plant at Minneapolis is located about twelve miles north of town, at a place called Branton. It is located on the Belt Line Railway midway between Minneapolis and St. Paul. This Belt Line is a road owned by all of the roads entering both St. Paul and Minneapolis. Consequently we have cheap transportation facilities on all lines entering either city.

Our plant operates two American Sand-stone Brick Machinery Company rotary A presses; four steaming cylinders, forty-seven feet long. Our sand is taken from the bank and is not prepared in any manner. We neither dry it, nor screen it, nor grind it. We hydrate our lime in our brick cylinders and we grind it by means of a Raymond Brothers separator and measure it with the sand by the hand method, running it through double shaft differential mixers direct into the presses.

During the past year, we started operating the first of March, and have run practically continuously, and are still running and will run to the first of the year. We started with about two million brick on hand, and by December of this year we will have made between nine and one-half and ten million, and will have shipped between eleven and one-half and twelve million. We are now shipping daily about 46,500, and we have averaged a million a month in spite of the fact that we have had a couple of serious set-backs in our factory, one of which was due to the breaking of a countershaft which delayed us about two weeks, and another delay of about three weeks through the settling of our boilers, due to an imperfect foundation at the plant.

The number of plants with which we are in competition there, I should judge, are about twelve to fifteen clay plants, of which perhaps eight or ten are in Minneapolis, and three or four are at Chaska, about thirty miles out, and four or five at Princeton, forty or forty-five miles away.

Then we have the sand-lime brick company, that is run by Mr. Bovy, at Red Wing, fifty or sixty miles from Minneapolis.

I think at present we have a surplus of common brick. Minneapolis is one of the leading cities in concrete construction in the United States, and practically all of the large buildings there, and a great many of the smaller ones are of reinforced concrete structure and only use brick for the walls, making a twelve-inch wall, and oftentimes the contractors are at liberty to use hollow brick, or hollow tile, where there is practically no strain on the wall, and in the five large buildings put up this year of concrete construction, there has been eliminated from the market about twenty million brick.

Of course, with the normal output of clay brick and with the advent of twenty million sand-lime brick in the last three years, there is a surplus of brick, and I think most of the clay-brick people are carrying their entire year's supply. This I got from a contractor, and also from an engineer of one of the clay-brick factories about two months ago.

Owing to the cold weather in our city, the majority of the clay-brick plants close about the first of December, and start up the first of May. The Chaska brick is the standard brick of the city, and they are specified by architects. Chaska has a production of about fifty million brick a year, and they usually sell them all. They make a pretty fair brick there.

We fortunately have sold all our brick this year, and where we should be shipping about seven cars a day, we are shipping about four.

I tried to prevail on the local sand-brick people to come down with me, but they were not in a position to do so. There is one small plant that makes about eighteen thousand a day, and they make a pretty good brick.

We ship principally by freight, having a very advantageous location for that manner of shipments, which enables us to place our brick either in Minneapolis or St. Paul, and it saves us a long wagon haul.

As regards the selling conditions, when we started we had a great deal of prejudice to overcome. There was a small local plant which is not now in existence, and which did not make a very good brick. We had in addition to that the usual prejudice to overcome which the average sand-brick manufacturer has, but I think that has been pretty well removed now, and while the architects do not specify sand-lime brick outright, specifications usually read "hard-burned brick."

President Goho: Do they use the word "burned"?

Mr. Godart: "Hard burned"; they consider our brick a burned brick there.

President Goho: Our specifications leave out the word "burned"; they simply call for a hard brick, and that unquestionably permits either kind.

Mr. Godart: I have taken it up with them and I think they consider our brick a burned brick.

Of course on Government buildings, our sand-lime brick is specified outright, and the clay brick does not have a look-in.

I was asked by the Dean of the Engineering Department of the University of Minnesota if he could view our plant, and I took him out along with one of his professors and showed him the plant and the general process of manufacture, and he was not only extremely interested, but was convinced that sand-lime brick were a good proposition, and I think as a consequence that they are going to be used in all the new buildings of the University.

The prices obtained in comparison with local clay-brick are, I think, in favor of sand-lime brick, with possibly the exception of competition with Chaska brick, which is considered the standard brick, though I think it has probably a little better reputation than it actually should have, but at the same time they are specified quite generally by the architects, and are usually given the preference over other clay-brick.

With the exception of our competition with Chaska, I think sand-lime brick prices are about 25 cents a thousand higher than the clay-brick.

The manner of competition used against sand-lime brick, was, I considered, rather indecent at first. Last year we had a circular issued against us by the Northwestern Clay Association, which purported to be a test of sand-lime brick by a professor of the university, and instead of giving the test on the clay-brick at the same time, and by the same test, they simply gave a general resume of the test of the sand-lime brick, and they gave all the unfair outcome they could without giving any of the more favorable results, and they condemned sand-lime brick generally, and scattered the circular broadcast. It was up to me to do something, so we had the same professor, and also one of the building inspectors go out to the plant and get the samples for the testing, picking their own samples, and also picking their own samples from one of the clay brick factories. Then the professor of the university took the samples and made tests on clay and sand-lime at the same time. In our circular we published a condensed report of his test alongside of the circular of the clay-brick people, and the result showed that our brick stood the test as well as the clay-brick. While we did not seek this test, it at the same time gave us an opportunity of showing the respective merits of the local brick and the sand-lime brick, and we came out very much ahead of them. We sent this report broadcast to the architects and contractors. Since then we have not heard of any unfair competition, because we have practically beaten them at their own game.

I was rather amused at reading in a report of the Clay Brick Manufacturers' Association, which met at Philadelphia, that one of the clay-brick manufacturers of our city got up and asked how the other manufacturers of the association would meet sand-lime brick competition, and another member answered, and said, "If you let them alone, there will be no competition," and someone else said, that where in his city two years ago a sand-lime brick plant stood, there was now a row of flat buildings. All of this did not please the gentleman from our city, and he waxed very serious, and he got up and said that the sand-lime brick were a serious factor in the market in Minneapolis, and they were not only competing with clay-brick, but that they were making a good brick, which is amusing, as he was one of the signers of the circular which I have mentioned. And I have since talked with one of the members of his company, and he said they had been giving him the laugh ever since for putting his name to the circular.

In regard to general selling conditions and the average length of time taken by contractors for payment and discounts given; we do not as a rule allow discounts. We have a large contract which we are now filling for a large out-of-town concern, where we gave a two per cent. discount, and not only are we getting our money in good shape, but they are making money on the discount. I do not think that a discount is of any advantage to us in Minneapolis. The contractors usually pay as they are paid. On an ordinary job they will finish the job in sixty to seventy-five days, and we usually get our money when they get theirs. I should judge the average time of payment will average around sixty days, and it does not seem possible under the conditions of competition, and the manner in which contractors are paid to bring it in in less time.

We have a lien law in Minneapolis which permits us to file a lien on a building within ninety days of the delivery of the last material. We have not had to take advantage of that lien law more than four or five times. We do not resort to that remedy unless it is absolutely necessary in case of a contractor that we feel is not good. Being pretty well acquainted with the contractors, and knowing how they stand, we do not have much trouble in that direction. We have put on the market, I think, very close to thirty million brick in the three years we have been in business. I think that Minneapolis is a very good field for sand-lime brick. At the same time, I think there is a surplus of brick. I think the clay-brick people are carrying right in Minneapolis around twenty million brick, and while they may get rid of them during the winter months to quite an extent, owing to the sand-lime people being out of brick, the price will raise in the Spring, owing to the demand. Yet I do not think any more brick could be used there without lowering the price. But the sand-brick business has been good, and they have had the preference over the clay-brick.

Mr. Louis Buckheit, representing the Mitchell Lime Company of Mitchell, Indiana, on motion duly passed, was allowed the privileges of the floor.

Mr. Allen: As to general construction of our plant, it is very similar to Mr. Godart's. We have two rotary presses, with four cylinders. We take the sand direct from the pit, and we do not dry it nor grind it, but it is passed through a very simple process, merely mixing the sand and lime together after the lime has been hydrated and it is elevated into the mixer, and from there to the press, with the usual process of steaming.

Our yearly output is about ten millions. During the past eight months we have made 6,900,000, or an average of 851,000 per month, and we have sold all the brick which we have made, and if we had had a stock of five million brick on the opening of the Spring trade, we would have sold them quite readily.

There are between twenty and thirty clay-brick plants, and one other sand-lime brick plant in operation in Toronto, and its immediate vicinity.

Their yearly output will run from two hundred to two hundred and fifty million. We have two large clay-brick plants which run continuously twelve months. The output of one of those will average 200,000 a day.

We operate our plant practically twelve months, closing down for a couple of weeks during the month of February to overhaul our plant and put it in a good state of repair.

Our means of transportation are by wagon and by rail. When we make a sale of brick in the city, which is our market for all we produce, we figure out whether the cost by rail or team will be cheaper and are guided accordingly.

Regarding selling conditions, the architects in Toronto view sand-lime brick with more or less suspicion. This is being gradually removed, and now a number of architects are specifying our brick, especially for the interior of large factories where they require light walls, and with the sand-lime brick they do not have to white-wash. The contractors as a rule prefer our brick where the conditions permit their purchasing from us.

The situation in Toronto is this: A great many of our contractors are carried through the season by the clay-brick men, a number of whom are financially strong, and as they receive better terms from them than from us, it has an effect in the purchasing.

As regards the manner of competition used against sand-lime brick, I may say that it is the meanest that claybrick ingenuity can devise.

The special means necessary in the introduction of sand-lime brick after we started operating our plants were personal hard work and guarantees given that the brick were equal to clay-brick. I, myself, had to go on bonds for a large amount in order to have our brick introduced. This is not necessary any longer, and our brick are recognized as being beyond the standards required by our city architects.

Regarding our selling conditions, our terms are net cash. Bills for brick which we sell during the month are payable upon the 5th of the following month. On the last day of the month I send out a statement to each customer, at the foot of which there is a note, "The above account becomes due on the 5th," mentioning the month following. Sometimes customers take a little longer time than the five days, but if the account is not paid on the 5th of the month, about the 6th or 7th I send out a reminder, and if this does not produce a response in the course of two or three days, I send another, and I may say that by the middle of the month fully 90 per cent. of the bills are paid. Our terms are cash; we give no discount.

We have mechanic's liens in operation. It is not as effective as the lien law this side of the line. We have only thirty days for filing our lien after the last delivery on the job. I may say that we have not found it necessary to take advantage of the lien law in more than two or three instances during the years that we have been in operation. Although the season is very far advanced we are delivering daily the output of our plant. As an illustration, yesterday we delivered 48,000 brick, while we made 40,000, the latter figure being the daily output of our plant. We hope by the opening of Spring to have supplied all of the local demand during the winter months, and to have accumulated a stock of from two to two and one-half million, to enable us to be in a position to push the business early in the spring.

Mr. Godart: I would like to call on Mr. Skeele.

Mr. Skeele: Local conditions in the South are very different from those that any of you experience. The labor, while nominally cheap, is I presume, the most expensive in the country. You cannot get them to work regularly. If they, on a wage of $1 a day, can pay their weekly bill by five days' labor, they would rather rest the other two. If you should pay them $1.25, hoping to encourage them to stick closer to the work, they could then make the necessary weekly expenses in four days, and then they would want to rest three. The more you pay them the less they work.

Notwithstanding that, you can make brick in the South.

Our factory has two Berg presses, dryers, two hydrating cylinders, a tube mill; nominal capacity, 40,000 brick a day.

As to the yearly output, I have not any yearly output; I have only got an occasional daily output, but I think I have it in such shape now that I shall have a daily and a monthly, and a yearly output that will be satisfactory.

What interests me most is the matter of selling, and any light that can be thrown on that subject, in view of certain competition, is valuable to us all. I alluded this morning to the competition in the South. It is very heavy and growing heavier, and there is a lot of building going on there in the South, and we naturally think it ought to be brick, but it is not, and just how to solve the problem is something that we have to study. There are different methods of forcing trade, and they all have more or less merit, no doubt. Advertising must be of the right kind. Many men advertising seem to think, "Here is the circular and printer's ink, and that is all there is to it"; but that is not true at all. You have got to see that your point is made, and see that it impresses itself upon the mind of the man you are up against. I think that discriminating advertising is bound to help you, but I do not think miscellaneous general advertising will produce results, as a whole. For instance, advertising in a journal of general circulation, you will find that because of the necessarily restricted territory in which you are operating, that seventy-five per cent. or more of the circulation of that medium is thrown away as far as your purpose is concerned. You must have strictly local advertising.

I think that the best way to advertise our goods locally is by means of the printed circular, giving one point at a time, and hammering that in, then another point and another, and another, and so on. Then some good personal solicitation, that is the final test that brings the order.

Now, on the question of collections; my sales are all sight-draft against a bill of lading. I have not an open account on my books. The sight-draft method is recognized with us and there is never any objection to it and it is very satisfactory.

I don't think I have anything else to say on this subject.

Mr. Godart: I would like to call on Mr. Crume, of the Crume Brick Company, Dayton, Ohio.

Mr. Crume: As to our manufacturing conditions, our plant is much the same as Mr. Allen's plant, only it is smaller. We have only one press and two cylinders. It is really the first year we have gotten into the immediate territory, Dayton. We started last fall, and business has not been very brisk in Ohio. The legislature last fall passed a law assessing property at its full value, instead of sixty per cent. as was formerly done, and everybody is afraid that when they go to taxing they will tax at the full rate, and they cannot see any money in improvements. Consequently the only building that has been done has been such as was absolutely necessary, such as factory construction, residence construction, and so forth, few business buildings going up. In the factory construction almost all of the factory buildings and the general construction in the city of Dayton, is of reinforced concrete, and while it makes a market for some sand-lime brick where they have a curtain wall, yet a great many of them are using steel walls and use no brick at all. One of the largest buildings that has gone up in the last year used about 150,000 or 200,000 brick, where if it had been put up out of brick entirely it would have taken two to three million brick to build it, and naturally it makes us all fight for what business there has been this year.

In the concrete buildings we have very little trouble as a rule, getting contracts to furnish the brick for the curtain walls, because the color of the brick matches the concrete that is exposed, and it makes a better looking wall. The curtain walls are eight inches in our territory, and it makes a finished wall on both sides.

We have six clay-brick factories in the city, and brick comes in from Indiana and also from around the Toledo district. As to prices, ours is in between the others; it is a little higher than the local mud-brick and a little less than the clay-brick which is shipped in from the outside. Practically all of our brick are delivered in cars, or shipped into the city in cars, and if we have to reload them they are hauled from the cars, because we cannot get into our plant with a very large load on the wagon.

As to the architects, most of them are favorable. In our territory the sand-lime brick is entirely new; there had never been any used there in that section. None of the architects were familiar with them and it took more or less persuasion to get them to consider them; but each architect who has specified our brick for the first job has given us further work, and one of the largest firms there is specifying our brick on almost everything, unless it might be on a job where it might be necessary to match some old red-brick work. In a great deal of work on concrete buildings where the color matches the concrete, and also on side walls where they use a little buff or light-gray brick, a great many of them are used in our territory and they specify our brick outright, and it carries out the same effect, the same color scheme, instead of using the dark brick with the light facing brick.

As to how the brick are regarded by contractors as compared with clay-brick, there are five of the other yards where the owners are contractors, that is, they make brick and they lay the brick. Now, they do not like our brick and they will not use them unless they have to; and the other contractors who are what we call the independent contractors, were also more or less prejudiced against our brick until they got to trying them. But, if I can get them to use them on their first job when they get used to them they like them better than the clay-brick. Another thing, the fact that the other clay-brick manufacturers are contractors, naturally tends to draw the independent contractors to our firm, because they feel they are getting a square deal.

As to the manner of competition against sand-lime brick, it is about the same as it is all over the country. If the contractor doesn't like them he tells the inspector of buildings that the wall will fall down, and that it is like mortar and that you won't have any building in the spring, and all that sort of thing. But of course that eventually reacts on them. It is simply a question of working away that prejudice.

As to the time taken by the contractors, our bills are payable the first of the month following delivery, but with the exception of two or three of the largest contractors, they are not paid when due. We do not give any discount. Two or three firms pay up promptly, but the rest of them pay when they get it. They get an estimate on a job the first of the month for what is due the month before, and when they get that we get part of it. They generally pay up the whole thing, but it averages sixty to seventy days before we get it from the contractors.

As to the lien law, we have a lien law in Ohio, which is not a lien law for the sub-contractor. It is all right for the general contractor. He can file four months after the material is delivered and collect his money, but the sub-contractor can only recover what is left in the hands of the general contractor after he is paid. All the sub-contractor has in the lien is what is left in the general contractor's hands. That is, what is due him each month as his estimate comes along when the job is finished and the last brick laid, if he settles up with him, we have no recourse at all except where some money is left in the general contractor's hands. However, so far we have not had to invoke the lien law.

Mr. Skeele: The executive committee having in mind the value of Prof. Woolson's membership in the Association, an honorary one, also the fact that he has resigned his position in charge of the laboratory at Columbia University, and in view of the fact that Dr. J. S. McGregor is now in charge of that laboratory, the executive committee recommend that Dr. J. S. McGregor be elected to honorary membership in this Association.

The motion was seconded and duly carried.

Mr. Carmichael moved that the Association extend the privileges of the floor to Mr. J. J. Urschel. The motion was duly seconded and carried.

Round Table

Conducted by Mr. H. B. SKEELE

An hour and a half was spent in an informal discussion of the following topics:

Insurance Rates.

Cost of concrete work as compared with cost of brick.

Comparative cost of ordinary frame construction and common brick.

Complaints from contractors that sand-lime brick will not adhere to mortar.

Mr. Skeele: I move that the president appoint a committee of three to consider the matter of securing admission to the Builders' Brick Association, the committee to report tomorrow morning.

The motion was seconded and duly carried.

President Goho appointed Mr. Burchfield, Mr. Jackson and Mr. Findlay.

Upon motion the Convention adjourned until 9:30 o'clock A. M. of the following day.

THIRD SESSION

Wednesday, December 7th, 1910.

The meeting was called to order by President Goho at 9:30 o'clock.

President Goho: The first paper this morning is by Mr. Loewenthal, "What is the most satisfactory way of storing, shipping and delivering brick?"

Mr. Loewenthal then read the following paper:

WHAT IS THE MOST SATISFACTORY METHOD OF STORING, SHIPPING AND DELIVERING BRICK?

The shipping of brick requires the careful conveying, loading and packing into freight cars. Assuming that the majority, if not all, of those connected with our industry have direct railway connections, commonly termed sidings or spurs, the close proximity of the stock piles or storage sheds to these sidings or spurs is an important feature in minimizing the cost of loading. Preferably, ground space permitting, the storage sheds should be constructed oblong in shape, of sufficient capacity to hold enough brick to permit of at least a couple of weeks' exposure to the air, and in cases where plants are shut down during the winter months, for storage of enough of the product to take care of the demand in the interim. These sheds should have overhanging roofs to protect the contents against bad weather and in unloading and loading. Brick should never be shipped fresh from the hardening cylinders, as the arras' are likely to be soft, causing excessive damage in handling.

For the economical unloading of coal, lime and other supplies, the railway spur should be so located that it enters into or passes close to the main buildings. The brick storage shed should lie between this spur and the trackage used for the removal of the hardened brick from the cylinders to the sheds. In this way the brick may be stored and later reshipped at a minimum expense of handling.

Employ skilled men in unloading and sorting; the "seconds" will then be separated from the "firsts," and this will save time when shipping out; otherwise costs are increased through double handling, delays in shipments, possible demurrages and blockading of the spur.

I am giving consideration only to the manufacture and sale of "face" brick; the handling of building brick in competition with "common clay" brick requires much less care.

In loading freight cars, the cars should be placed as close as possible to that part of the storage shed from which the brick are to be conveyed. Brick may be loaded by hand or they may be conveyed by a gravity carrier; in either case they must be carefully loaded and unloaded by hand. Brick may be handled six or eight at a time by using a brick tongs. In that case they must be carried from the piles to the car, and the weight generally tells on the men carrying them, especially in handing the load up to the man in the car. Presumably the cheapest and safest manner of conveying is in the use of an ordinary wheelbarrow, constructed with flat, in place of concave body and with a straight foot board to prevent the slipping of the brick when the barrow is held in a slanting position. These barrows may be run up a slightly inclined scaffold to the entrance of the car. One man in the car as unloader and packer and two men handling wheelbarrows should load 10,000 brick in from 5 to 6 hours. Brick should never be loaded at ends of cars, leaving the center space open, for even though the end piles may be boarded up and braced, they are likely to shift and become damaged in transportation. Rather, pile a lesser number of rows high but completely cover the bottom surface of the car. Brick in loading should be protected, either by wrapping in individual straw or cardboard cartons (rather expensive) or each layer laid in straw or marsh grass; this last serving every purpose and costing the least. Thirty cents (30c) per thousand brick should be a safe estimate of the cost of loading, including the packing material. If planks and braces are used, it runs up the cost unnecessarily.

The load being ready for shipment, be sure you have an accepted freight rate to destination, otherwise you may find your delivered price was improperly based, cutting into the net figures.

When the shipment, from shipping point to destination, is handled by the originating road, rates are likely to be fairly equitable, but when two or more carriers have the handling of it, the charges are frequently prohibitive. The railroads are apt to protect similar manufacturers on their own lines as against foreign shippers attempting to enter that territory.

When brick are to be delivered F. O. B. a city or town, the shipper's responsibility ends on making safe delivery at the way-billed point, but in some large cities the contractors and builders have been accustomed to receive a delivery on the job (the contemplated building operation), and in such cases it is necessary to follow the custom; therefore the shipper is obliged to arrange and pay for the cartage and has the additional risk of damage in unloading from the car, in carting and again when unloading at the job. In the East freight and cartage must be included in the selling price. This adds to the seller's risk without additional compensation for the tying up of the increased expenditure.

Terms and discounts may vary in different sections, but it is wise to stipulate that discount is not allowed except on the selling price of the brick, otherwise deduction may be made from the delivered price, in which has been included both freight and cartage.

President Goho: We are ready to hear from any one who has something to say on this paper.

Mr. Field: I will say in regard to Sibley, that what Mr. Loewenthal said about the charges being absorbed by one road and transferred to another road, has been one of our greatest difficulties. We find that for the same shipping distance we can get much better rates when the destination is on the originating road, and that the rates are really almost prohibitive when they have to be transferred to another road, even for a less distance.

I would also speak on the subject of discount. Through the suggestion of our Detroit representative, instead of using a discount on our bills in the form of a percentage, we apply a flat discount, so much per thousand brick, and in that way it makes no difference whether they are delivered or whether they are on the railroad siding, we get away from that point absolutely. It has worked very successfully.

Our collections have been so good that we hardly know what it is to have trouble collecting a discount, because we allow a good discount and a flat discount which every one can understand.

Mr. Loewenthal: Give us an illustration of your discount.

Mr. Field: This year we have done some experimenting. We put on a discount of twenty-five cents per thousand brick, the payment on single car loads within ten days from date of shipment from plant, or if the customer wishes to take more time, we allow a second discount of fifteen cents per thousand for payment on the 15th of the month following the date of shipment.

In case of large orders requiring more than a car load, we have made a special discount of twenty-five cents for payments semi-monthly, on the 20th of the month for shipments of the first half of the month, and on the 10th of the following month for shipments the latter half of the month, and we have had the 15th of the month for a fifteen cent discount in case they failed to take the first discount.

The purpose of the second discount is to insure the collection in case they failed on the first one, without having to put a lien on the building. The timing of that was so arranged as to give us at least two weeks within which to prepare our papers for liens, should we be compelled to do so, and yet give a little time to approach the customer in a gentler form than by law, asking him if he has not overlooked his discount, and so forth. It has worked very well.

Mr. Warren: Before you leave the question of freight rates, I would like to ask if any member has any special rate for a certain distance. The Canadian Pacific Railroad gives us a regular rate, as they call it, and it gives us very good satisfaction. We have no difficulty once the rate is established. I have always contended, however, that the rate is too high, and I have been trying to beat them down. They claim their rate is lower than in other districts. Our haul is ninety miles, and our rate is five cents per hundred. I would like to know if other members have a special rate, and how it compares with ours.

Mr. Findlay: The C. P. R. R. freight rate in Manitoba is, inside of ten miles, 2¾ cents per hundred. Their rates are all based upon the hundred, but it can be easily figured out:

From 10 to 25 miles, 3 cents
From 25 to 40 miles, 4 cents
From 40 to 50 miles, 4½ cents

From	50	to	60	miles,	4¾	cents
From	60	to	70	miles,	5	cents
From	70	to	80	miles,	5¼	cents
From	80	to	100	miles,	5½	cents
From	100	to	120	miles,	6	cents
From	120	to	140	miles,	6½	cents
From	140	to	160	miles,	7	cents

That is about as far as I need to go. I don't suppose any of you go much further. We have shipped brick 400 miles. We have a special rate. Our plant is thirty-six miles from Winnipeg.

A general discussion then ensued in which the following named gentlemen took part: Messrs. Warren, Findlay, Jackson, Loewenthal, Crume, Wood, Burchfield, Field, Goho, Sears, Simpson, Skeele and Plummer, which indicated clearly that local conditions were so varying that no general rule would apply to all.

President Goho: The special committee on affiliation with the Builders' Brick Association will present their report.

Mr. Burchfield: The Committee reports that they have gone over the question thoroughly, and decided that they do not feel that as an Association, we should make any demands on the Builders' Brick Association at this time.

Mr. Plummer: I move the report of Special Committee be accepted. Carried.

President Goho: The next item in our programme is a round-table conducted by Mr. Penfield.

Mr. Penfield opened the round-table, and suggested the following topics for discussion: Development and Improvement of the Industry; Plant Design of Brick Making Plants and Plant Equipment; Materials which are used in Sand-lime Brick Making.

The several topics were here taken up and discussed.

Mr. Penfield: I will call upon Mr. Simpson to discuss sands and the adaptation of machinery to working the two kinds of sand, taking into consideration dry and wet grinding plants, and its adaptation to sand grinding, and the tube mill and its special adaptation to sand grinding.

Mr. Simpson: Twenty years ago the tube mill was the prevailing grinding machine for a sand-lime plant. The chief objection to the tube mill was the power it requires for its operation. A number 12 takes 28 horse-power, and a number 16, 75 horse-power to start the machine, and it takes about 25 horse-power more to get it to run, and that was a very serious handicap. And yet, I find in my investigation of sands, I will give you an instance: Michigan City sand is a sand that is blown up from the Lake, and there has been a process of air separation. The winds which blow it up blow away the fine part. In testing the sands by screening tests, we find the great majority of the grains are sixty and eighty mesh.

There is just a fraction of one per cent. over one hundred. We all know that is not the ideal condition for sand-lime brick. It should be fifteen per cent. over 100 mesh. That is the condition we all try to arrive at. If that is not in the sand, it is our province to get the machinery that will make that condition.

Michigan City sand, when taken by itself, does not make a first-class brick. Therefore, it was necessary, if a high-grade brick was to be made from that sand, or similar sands, that a reduction is necessary. Now, in a case of that kind, the tube mill is the better machine to use. A tube mill installation does not mean alone the tube mill, but it means a drier as well. You cannot put wet sand through a tube mill. Some people say they can, but I have never been able to.

You have a great deal of trouble in hydrate lime installation, where the lime is hydrated under the brick cars, where the lime would come out in a damp condition, and in a very short time after the introduction of the damp lime, the tube mill was coated up three or four inches thick, and ceased to be an active machine; and, therefore, the necessity of having the materials dry in going through the tube mill.

Another point about sand of that nature is a tube mill will only take the finer grade of the sand, the abrasive action or the tamping action, whatever the action is, because there is a difference of opinion among experts, is that at the line of abrasion, there are only small pebbles present. And the speed of the tube mill must be so regulated that those pebbles will fall and not flop over like that, no centrifugal action. If it is run too fast, they will run up without any action whatever on the sand. There must be a falling action. Therefore, the speed of the tube mill is very important.

The sands of that kind are ordinarily very hard. As to the round condition, it has been suggested that if the particles are round to begin with that they will be round when they come out of the tube mill. That is a mistake. They are not round when they come out. I have examined them under a microscope, and they are quite angular. Therefore, the condition of the sand when it comes out of the tube mill is nearly ideal.

Then the tube mill is a very good mixer. There is no better mixer than the tube mill, but it is because of certain sands that we can justify the tube mill. There is nothing that is equal to it for a sand like the Michigan City sand. There is a great deal of sand throughout the country that has not got that uniformity and that roundness of grain that is comparatively angular in shape. Now, with a sand of that kind we believe that the wet and dry grinding pan is the proper machine to use. It has many advantages. It may be used with the caustic lime system or the hydrated lime system. It makes no difference. It is effective in either case. The sand can be introduced into the machine at various times. It need not be all at once. For instance, if you have a 1,500-pound charge, or a 1,400-pound, or a three or four hundred pound, it can be introduced, so that the action of the mullers, which weigh about 5,000 pounds each, can be used to grind that very small amount of sand that may be in a pan of nine feet in diameter. Now, to put in the entire charge you would not get the grinding action. What we want is to get the grinding action on a certain amount of sand; not all of it. All of it would be as bad as if it was not ground at all. In other words, you can get as poor a brick with all fine sand as you can with all coarse sand. The same amount of porosity is in one as in the other. The idea is that we want to get a variable grain, the finest to be from fifteen to seventeen per cent. over 100 mesh, because it is the fine stuff that is attacked by the lime, and it is the fine part that fills up the pores between the large particles.

In the wet and dry grinding pan machine there has been considerable improvement. The ordinary wet pan that is sold usually is not adapted for the purpose. There are certain details that have been worked out so as to accommodate themselves to this same line of work. For instance, it has been found by experience that the width of the muller has considerable to do with the grinding of the sand in the wet pan, and the construction of the pan in other respects. The prevention of clogging and other details have been worked out.

There is another advantage in the wet pan, and that is that it does not take more than one-third of the horse-power necessary to run the Number 16 tube mill, requiring from 25 to 30 horse-power.

Then the simplicity of the plant is in its favor; no drier is required. You can introduce the wet pan in cases where the silo system is used either before or after the silo. My own idea is that it is better afterwards, although the prevailing custom seems to be before it.

Another point of advantage of the wet pan is the grinding or crushing action. This idea of putting the sand in shape, so that it becomes a plastic mass and helps out the press more than anything you can mention. In a pug mill action, or a tube mill action, there is a throwing up in the air, there is a throwing away of the finer particles of the lime and a packing of the sand that is not desirable. The wet pan grinds the lime right into the sand, and when it becomes angular, which it does, the lime is all the better for being forced into the particles of sand after the particles have been broken up, and made still more angular.

Now, in verification of what I am talking about I have been reading lately a work published in Paris by a Mr. LeDuc, and he gives some data.

Mr. Simpson here quoted at some length from the authority mentioned.

Mr. Penfield called on Mr. Simpson to speak on the subject of the influence of wet and dry grinding mills and the percentage of lime required in the mixture and the amount and frequency of the charge of the nine-foot mill.

Mr. Simpson: My experience with this mill is rather limited. Where silica sand is used it must be pulverized until it is fine enough to form a pasty mixture that will adhere to the mill. They use it on the surface instead of on the bottom sand, largely to keep the high temperature of the steel from burning into the sand. We find that a wide, fast, heavy muller would be sustained by a white silica sand, although we weighed some of the mullers and made them very large, as large as 60 inches in diameter, and a 16-inch face, and without that the very force of the muller would smash any kind of sand, but with fine sand the muller, as large as it was, that large muller, would ride around on top of that fine sand, and we resorted to the method of narrowing up the face of the muller and retaining as much weight as the face of the muller would carry until we got the muller down as narrow as three inches. That was the narrowest muller I have known of our company trying.

In the sand-lime work we run up against the question of capacity as well as grinding, and the first set of mills we put in, the plant was built of our standard pattern; style F was the standard pattern they were putting on the market, and we used that pan bottom. It was a sectional bottom reaching up from a body on which were bolted extension arms and the mullers over those. They were not perfectly tight. They were uneven on the faces, and were not machined on the arms. But it was sufficient that when the material was dropped on the pan in comparatively round shape it sifted through. We, therefore, adopted the solid bottom pan. The outer rim of the pan bottom has been machined and also the face of the pan, so that all the castings and the steel rim have a solid close fit. In addition to the leaking of the material from the pan, we had trouble by the material flushing over the top when a full charge was put in, and the pan started up at the speed we have been accustomed to use. That resulted in our increasing the height of the rim, and we increased the weight of it, which is double our standard style weight. So that we have it of sufficient depth to prevent it flushing over.

In ordinary pans we do not supply a shovel for removing material. We let the customer furnish that. Regarding the difficulty that was referred to last year in the books, of the material caking on the rim of the pan and on the top of the pan to such an extent that it would retard the motion of the pan, increased the power required to drive it, was a considerable trouble, and works somewhat as a brake on the bottom, we learned that it was necessary to keep the working parts of shovels and points and scrapers close to the moving surfaces of the pan, to prevent the caking of the material, and we changed the construction of these parts quite materially. It may be susceptible of further improvement. Those are some of the alterations. In the mullers, at the suggestion of Mr. Plummer's company, we divided the muller into two pieces, making a sectional muller; and we have during this year been utilizing another type of muller which I will not mention, as I understand Mr. Plummer is going to report his experience, so I will leave that for him.

Mr. Skeele: Has any pan been devised that will perform its work in a continuous operation?

Mr. Penfield: From my experience, operating wet pans, they have been in use in grinding a variety of materials in this country, largely in grinding smooth plastic clay. They do very well in some lines of work, although they are very objectionable from the standpoint of the litter that is caused. We make them and have for years. We call them automatic discharge pans. When we have the material sufficiently mixed we have a section of the rim that revolves and opens up at the side and the material is taken out. One of the troubles is that the material leaks out when it meets the stationary rim. It ultimately wears, and we have been compelled in many installations to put in a catch underneath the regular pan to catch the material which leaks out between the bottom and the rim.

The Pittsburgh company has made quite a feature of a continuous grinding pan and stationary rim, and removable bottom.

Mr. Warren: Do I understand these wet pans are suitable for grinding gravel as well as sand?

Mr. Simpson: They are to a certain extent.

Mr. Warren: Up to one-half inch?

Mr. Simpson: I don't think I have used them as high as one-half inch, but the gravel, the mullers seem to move over those pieces and grind down and drop down on the sand, and gives it that mobility that it would not have without it.

Mr. Warren: That is, the gravel would be ground with the sand?

Mr. Simpson: Yes, up to a certain point. Of course, not large gravel, but small gravel is all the better provided the particles are not too hard and your gravel is not too coarse.

Mr. Jackson: In the sand-lime brick plants at Kiel, which I visited in January, 1908, their material is put over a three-quarter screen; the boulders are put through a crusher and the coarse gravel is put on the road for road-making and the finer, everything that will pass through a three-quarter mesh, sand and lime, is put through the continuous operating wet pan. They make good brick, but they do not, of course, crush up all the gravel. I have seen gravel five-eighths of an inch that had not been crushed. But there is enough fine material. Taking what there is in the bank they make a very good brick.

Mr. Simpson: At the Convention in Detroit years ago at the Cadillac Hotel we had a gentleman with us named Grieve of Ceylon, who came to this country to investigate the grinding of sand. Mr. Grieve gave me a very detailed account of the pan that Mr. Jackson has just spoken of. The mullers were eighteen inches wide; it was a continuous pan. The idea was that those eighteen-inch mullers would take in a very shallow amount of sand, which was supposed to spread across those mullers, and on the way from the outside periphery of the muller to the inside was the grinding that that sand got, and disappeared into the material and was discharged on the center continuously. Mr. Grieve had one of those in his plant and he made the trip all the way from Ceylon to England and from England here to find out something better, and he told me it was absolutely unfit to do his work; did no grinding at all. It was not possible to do any grinding under those conditions. Therefore, our German friends are on the wrong track.

Mr. Jackson: The pans I saw did not discharge in the center.

Mr. Simpson: How did they discharge, on the side?

Mr. Jackson: I did not go into that, all I know is that they gave good results.

Mr. Simpson: The sand is not ground that way. The consequence was that Mr. Grieve bought a tube mill and sent it to Ceylon, notwithstanding he had one.

Mr. Plummer: The distinction between the wet and dry pan might be appropriate to state at this time. It is my understanding that the distinction is simply in the fact that one pan has a continuous discharge, and that as the particles become small enough to go through some orifice, be it located where it may, there is a continuous discharge. That is the dry pan, as I understand it, in which material of a dry character is placed and crushed to a small fineness as determined by the mesh in the bottom of the pan. The contents are discharged. The wet pan undoubtedly got the name from the wet mud that it was made to grind and is essentially a batch affair.

Mr. Brand was here from Scotland last year and he told me that he had a proposition similar to what Mr. Jackson saw in Germany. He rebuilt his factory twice and he told me he was now using pans in his silo process, sending his product through what I would call dry pans. Two continuous pans, it went into one and then into the other. The transferring was incidental, it was not positive. There was a stream, of course. The smaller the orifice you had in the pan the more grinding it would do, but the orifice was of such a size as to enable you to let your material work out of it. I should say in practice where the material was a little damp it might be affected unfavorably on account of the coating and filling of the material.

Mr. Penfield: There are three distinct mills. There is a series of dry pans such as you have described, and there is a series of water-grinding mills such as you are using. We call those in our practice wet and dry grinding mills. There is also a continuous feed and a continuous discharge mill that uses wet material. That is the one that Mr. Jackson has spoken of. It is a good mill.

Mr. Jackson: The material is elevated up with an elevator, and it is fed into the pan and discharged on the opposite side and taken from there and put into the press. It is a continuous operating process, but I did not go into the details regarding the pan, because I was not interested.

Mr. Penfield: I will ask Mr. Burchfield to give his experience on these questions.

Mr. Burchfield: My experience in brick manufacture is rather limited. We have recently installed a nine-foot duplex wet pan, but it has not been in operation long enough for us to determine what it is capable of doing.

So far as we have operated it I find that I can make a very good brick out of six per cent. of hydrated lime; I can make a better brick of seven per cent. and still better of eight. That is what we are now using. Of course we feel that a little later on, after our men become thoroughly familiar with the machine, that we will get better results.

The sand we have been using the past year has been very undesirable. We are now negotiating with some people to furnish us with sand which is gravel and medium sand and very fine sand. When we do I think we shall be able to use a smaller percentage of hydrated lime.

In charging the machine we first put in a charge of 300 pounds sand and 100 pounds lime and grind that for a minute and a half, and add the balance of sand, 800 pounds, and grind that about two minutes and a half and empty the pan in about two minutes and a half.

We are getting very good results by this method, except that our sand is becoming a little bit wet, owing to the fact that we are not able to get in sand dry enough for storage, and the mills make the mixture a little too plastic. The result is you cannot get as great a pressure on the material in the press.

Mr. Bovy: How long does it take you to put in the charge?

Mr. Burchfield: Oh, it takes scarcely any time at all.

Mr. Bovy: How do you weigh it?

Mr. Burchfield: It is weighed out in a bin, and we mark the bin by strips of wood on the inside, and we have a slide that we run the material in up to the mark on the bin; so much, 300 pounds; so much, 900 pounds; so that we can get a 1,200 pound charge.

Mr. Sears: You use two slides, an upper and lower one?

Mr. Burchfield: Yes, we have a slide to drop the material into our measuring box, from the storage bin into our measuring box, and from the measuring box we pull a slide and that drops directly into the wet pan. We one pan, the other pan is being filled. One man upstairs in our plant takes care of the raw material for both pans. We have one man downstairs oper-operate both wet pans at the same time, and while one man is discharging ating.

Mr. Bovy: When is it put together?

Mr. Burchfield: The first time we put in the charge of 300 pounds and 100 pounds of lime on top of that, and grind it up.

Mr. Jackson: That will give you the eight per cent. Then you add 800 pounds of sand and grind it two and one-half minutes.

Mr. Burchfield: Yes.

On motion, the further discussion of round-table subjects was continued until the afternoon session. A motion to adjourn until 2 o'clock P. M. was carried.

FOURTH SESSION

Wednesday, December 7th, 1910.

The Convention was called to order by President Goho at 2 o'clock P. M.

President: With your permission we will jump about a bit on the programme this afternoon, owing to the fact that some of the members will have to leave early in order to catch their trains, but I want them to get through with what we have in mind before they go.

The first item on the programme is the report of the Executive Committee. While I do not want that report in full at this time I would like to hear from Mr. Godart who has to take a train at 3 o'clock.

Mr. Godart: The district which I represent, which is that west of the Mississippi River, has had a season of considerable prosperity; at least, the plants in the immediate vicinity of Minneapolis have done very nicely, operating practically all the year.

I have endeavored to induce the various manufacturers in our vicinity, probably in the neighborhood of eight plants, to join the Association and attend the meetings, but outside of the two representatives here present, Mr. Bovy and myself, they have not seen fit to do so.

The manager of a plant that was erected only this year was up in my office a few months ago, and I was urging on him the necessity of joining the Association. They manufacture face brick, and they make a very nice brick. I told him the advantage of joining, not only for himself, but that the association needed the support of all sand-brick manufacturers, and I told him it was especially helpful in case he had any difficulties to solve. He came back at me by saying they had solved all their troubles before they went into the business, and he had nothing to learn. I have not seen him since, but I stopped my solicitation right there.

Mr. Jackson: Is he located in Wisconsin?

Mr. Godart: Yes.

Mr. Jackson: I saw him since then, and he wants to come in.

Mr. Godart: We cannot do as individuals what we can do as a whole. I have written to the other manufacturers of sand-lime brick in my locality twice, without any response from any of them, and have endeavored to make the letter as personal and conclusive in thought as possible, and without any results.

Rapid City, South Dakota, has a plant which I do not know whether they are operating now, but they will be in a very short time.

I think I can report a very optimistic feeling prevails in the district which I represent.

President Goho: The next item will be a discussion by Mr. Plummer. He is going to tell us something about the operation of wet pans.

Mr. Plummer here read the following paper:

THE SECOND SEASON WITH WET PAN PROCESS.

W. E. PLUMMER, JR.

Mr. President, and Gentlemen:—

I feel so sure of your interest in this matter, that I am glad to put before you a few facts and some theories, that you may all be in touch with our process, which I feel is producing the best results obtainable in any way, under conditions which exist at a large portion of sand-lime Brick Plants.

The most important point in our business is to make a brick of such quality that criticism is not easy.

That we have by use of wet pan accomplished this in a difficult market is evidenced by the fact that we have been trying to get into our market for six years, and last season was the first in which we got a real foothold, and this year have doubled our sales of last year.

This result is entirely due to the wet pan, and, furthermore, we knew our brick were not as good as could be, for no natural sand brick is as good as you can make.

We therefore can only shout for the wet pan.

As to cost of maintenance of wet pan: We have expended upon renewals of Muller Rings and Bed Plates, $86.00, for two seasons' run, 6,500,000 brick, and as a matter of fact $50.00 for two rings is not yet a part of expenditure, as we have not as yet put them in service.

We have reversed our rings twice during this season, changing them around to get best faces together.

Our experience shows quite a variation in the metal of the rings, and it is desirable to keep them in pairs of about same degree of hardness where possible.

This difference in hardness of rings, we believe, can be overcome by the manufacturers when they carefully study out the requirements.

The other noticeable point of wear in wet pan is the bottom or bed plates under the Mullers in bottom of pan.

These will wear apparently, with our material, for about 4,000,000 brick. They are not, from our point of view, properly designed for this line of work and we have taken up this point with the manufacturers, who will undoubtedly remedy this trouble.

We have clearly demonstrated that if you use 8 inch face Mullers, that they should carry two 4 inch face rings, instead of one 8 inch ring.

Gentlemen, my excuse for talking to you is that I heartily believe in the American Association of Manufacturers of Sand-Lime Products, and firmly believe the success of the industry is entirely dependent upon the diligent effort on the part of each member to give every assistance that he can to the others for the betterment of the general production.

Thanking you for your kind attention.

W. E. PLUMMER, JR.

NOTE.—Since the meeting at Detroit I have demonstrated to our satisfaction that by using 4 inch face on our 8 inch Mullers, we obtain even better results than with the 8 inch face, and power required is less. We have made 250,000 brick in our test run on 4 inch face, and they are all O. K.

Mr. Jackson: I wish to move that the members of this Association tender a vote of thanks to Mr. Plummer. His article is very well prepared and very complete, and I think any of us could afford to miss our train in order to hear it.

The motion was seconded and duly carried.

Mr. Bovy: What material are those rings made of?

Mr. Penfield: Regularly the rings are made of part gray iron, or what we call white iron. They may be made of any kind of steel. Some of the companies make them of steel, but we find that it does not wear as long as what we call white iron.

Mr. Bovy: They are not chilled?

Mr. Penfield: No, they are made hard all the way through.

Mr. Simpson: I can explain that to Mr. Bovy. White iron is the material that malleable iron is made of before annealing. The virtue of it is that the carbon and manganese (?) is combined, combined with the metal, giving it that white appearance. I have had some experience in the foundry business. It is not chilled metal, but it is hard all the way through. Chilled metal has just got a skin, a hard skin on it, from one-eighth inch to one inch. When that is gone you have only the soft metal, but these Muller rings are the same all the way through.

Mr. Bovy: I would like to hear a little more from Mr. Plummer regarding his wet pan.

Mr. Plummer: Our plan is this, our hydrating can contains 320 pounds of quick lime hydrated. We make six batches out of the can, making fifty-three pounds to the batch of quick lime. We have a wheelbarrow so arranged that when we fill it we do not have to stop and weigh it. Charging, we use a forward dump wheelbarrow shaped like a sugar scoop, holding three cubic feet level full ,and it dumps over forward. We dump three cubic feet of lime (hydrate) and three cubic feet of sand in the pan. It runs three minutes. On the signal of the pan-man we dump two more wheelbarrow-loads containing each three cubic feet, making twelve cubic feet in the whole charge. In the next two minutes we evacuate the pan. It takes us one-half minute to empty it. He will sometimes put it out in twenty seconds, but it averages one-half minute. We repeat this operation twelve times per hour and in nine to nine and a half hours we make 20,000 brick.

President Goho: We did not reach Mr. Plummer's and Mr. Field's papers this morning on "Hydrating of lime for brick making." We will hear them now.

Mr. Plummer here read the following paper:

HYDRATION OF LIME FOR BRICK MAKING.

W. E. PLUMMER, JR.

Mr. President and Gentlemen:

In presuming to come before you again with a paper, I must say that I feel that an apology is due, but the circumstances are as follows: Some weeks since our uniformly genial Secretary wrote me a letter which would appear on its face to show him a very worried and disheartened man in his efforts to get speakers at this meeting. In a moment of weakness I offered to give a paper on our second year with the Wet Pan. And incidentally mentioned that we had been making some experiments in the hydration of lime, which I expected to tell the boys about when we met.

To my surprise on receipt of the programme I found myself down for a paper on the Hydration of Lime, so if I mix up the hydration of lime and the Wet Pan you will know the reason why.

Also what I have to say upon hydration is only applicable when the Wet Pan is used, and entirely unfitted for any gravity or screw mix.

Hydrate for Wet Pan use can carry quite a percentage of water and need be only dry enough to give you the proper temper for your press.

Our plan is as follows: First, we provide three brick bins, one for the storage of crushed quick lime, and two bins for the storage of hydrate. Capacity of quick lime bin one and one-half carloads. Capacity of hydrate bin each equal to three days' run.

Place your crusher at the door of the car, and shovel from car direct to crusher, and convey from crusher direct to the quick lime bin.

Elevate from this bin to small hopper over the hydrate bins so placed that you can drop your charges into the hydrator.

Our hydrator consists of four of the old buckets formerly used under the brick cars in our old process, which are mounted on a turntable upon the top of the hydrate bins, and arranged to dump as required, into either of the bins.

Operation as follows: (buckets 1, 2, 3, and 4) Bucket number one place under the hopper and run in 200 pounds of water and then put in 320 pounds of crushed lime and swing table around to bucket No. 2 and repeat the operation and so on until you come to No. 1 again, which is now ready to dump into the bin. It takes about five minutes to handle each bucket, therefore the capacity of the hydrator is about two tons per hour.

As our bins hold about ten tons it will take half a day to fill the bin so when the bins are both filled and the scheme in operation the hydrate will have five days to season, not counting Sundays.

You will note that the hydrate drops into the bins while very hot, and the hydration of any refractory particles of lime is assured, for these bins are closed up tight to hold the heat.

This process does not add to the cost of hydrating over the old method of hydrating under the cars in the drums, but on the other hand gives the services of the cylinder men for about half of their time two days out of three, and makes their life less miserable, particularly in hot weather.

This system is a batch system as you will note, and, gentlemen, if you want to get the best results in our line of business get down to some batch method, and you will get better results than from any continuous method. Thanking you again, I trust this paper may be of help to you.

Mr. Field: The Secretary wrote me a letter asking me what we have been doing during the year, and to have a few remarks about it. I was glad to tell him our business as far as the sales and manufactures were concerned had increased some 200 per cent. up to that time, compared with any previous year.

HYDRATED LIME IN THE MANUFACTURE OF SAND LIME BRICK.

BY H. G. FIELD.

When I accepted the invitation of your Secretary to discuss at this meeting the subject of Hydrated Lime I had in mind only to take part in the general discussion of the subject, but I learned later that he expected something more than that, and I must confess that my knowledge of the subject is very limited, and it is unlikely that I shall be able to offer much of interest, and especially to those of you who have had much more extended experience in the use of Hydrated Lime in the manufacture of sand-lime production.

However, to those who may have tried the different brands or grades of lime and hydrates with varying degrees of success, it may be that some of you may not have known why the results were so different and perhaps so startling. One of the first essentials of a good lime for sand-lime brick is that it must be a high calcium lime. Perhaps you have tried to use some of the commercial hydrates containing a high percentage of Magnesia and have had your brick swell so much as to push some of them off of the cars in the kettles. An analysis of one of the plaster hydrates in this market showed very complete hydration of the calcium oxide but very incomplete hydration of the magnesium oxide, the approximate analysis being sixty-three per cent. Calcium Hydrate, six per cent. Magnesium Hydrate, twenty-nine per cent. Magnesium Oxide, 0.75 per cent. Aluminum and Iron Oxide and 0.25 per cent. Silicon Oxide. This hydrate, although probably very good for plaster would not be at all suitable for sand-lime brick. The Magnesium Oxide which did not hydrate during the process of hydration of the Calcium oxide, would hydrate more or less completely in the brick hardening kettle with the consequent expansion of the brick due to the change in volume in completing the process of chemical combination with water under the favorable conditions for hydration existing in the hardening kettle due to the heat, the moisture in the steam and the long period of time exposed to the heat and moisture.

Again, a commercial hydrate, although made from lime resulting from the burning of high calcium stone, may be very poor for the manufacture of brick unless the lime is carefully selected. The selected lime should then be hydrated before it has an opportunity to become air-slaked, otherwise, the resulting calcium carbonate will serve as an impurity in the hydrate and as such will prevent to some extent the chemical action which must take place between the calcium hydrate and the sand to form calcium silicate and thus form the bond between the sand particles which is essential to formation of good sand-lime brick. As the calcium carbonate is an impurity in the lime so is it also an impurity in the brick, just as so much limestone dust would act as an impurity in the brick.

As the selection of proper stone for burning in the kiln is an essential for the making of good burnt lime, so is it also necessary that over-burned or under-burned lime or cores be rejected in the selection of lime for hydration or finally in the bolting or separation of the hydrate.

Brick made from hydrate containing calcium carbonate will be more or less soft when removed from the kettles in proportion to the amount of this impurity. Of course, brick may be soft from other causes, but we are assuming proper mixing, proper proportions and steaming.

Many limestones contain sand or silica. The presence of silica in lime hydrated in quenchers in the brick hardening kettles will cause some of the lime to enter into chemical combination with the silica and this will mainly be rejected by the grinder screens in the form of lumps. The brick manufacturer will have paid for some silica at the price of lime and will in addition throw away this silica together with some of the lime as a natural result of the method of hydrating employed.

The process of hydrating lime in the brick hardening kettles has some points of advantage, but I confidently believe that the time is near at hand when most of us will either hydrate our lime in a plant designed specially for perfect hydrating of high calcium selected burnt lime, and we will store some in commodious bins above or in close proximity to the sand and lime-mixing apparatus. Or more than likely, we will buy our lime already hydrated and containing its proper water content.

There may be some who are so fortunate as to have a sand supply of ample quantity which always contains the proper amount of moisture and yet not too much moisture for use with lime hydrated in quenchers in the hardening kettles, which hydrate is very sure to carry an excess of moisture and to vary considerably in the amount of moisture. Then if the hydrate contains too much moisture you must be prepared to dry your sand.

It is much easier to secure a good bonding mixture with sand as it comes from the stock pile, by using hydrate containing only its proper content of moisture, the brick are more uniform, the hydrate may be stored for an indefinite period without deterioration, it is easier to handle and assuming the same cost per ton of burnt lime and hydrate the brick costs no more and possibly less per thousand by reason of labor, power and fuel saved in plant. In a plant making 40,000 brick per day it takes five more men to handle quenchers and grind lime, than to handle lime purchased already hydrated. It is also sometimes difficult to secure and hold help in a brick plant where the hydrating is done in quenchers. Then again, the plant investment is less because neither sand dryer nor lime grinder is required, to say nothing of less boiler and engine capacity and other power plant equipment for the operation of grinder.

A good hydrate must be: (1). Uniform in its water content. (2). Free from calcium oxide or unhydrated lime. (3). Low in magnesium oxide. (4). Low in magnesium hydrate and (5) Free from calcium carbonate.

The manufacturers of sand-lime brick will, I believe, eventually specify the analysis of the lime and the analysis of the hydrate purchased, and the lime manufacturers will in turn be obliged to furnish the material according to the brick makers' specifications.

If I have only hit the high spots regarding the subject of hydrated lime, in the manufacture of sand-lime brick, this paper will have served a purpose providing it brings out some good discussion on a subject which is of vital interest to us all.

Mr. Jackson: I would like to ask a question. How much hydrated lime will a ton of the unhydrated lime make?

Mr. Field: I wish I could answer that question. What information I have on that subject is from an unreliable source; but I will say this, however, a hydration, properly hydrated, will take up, I believe, according to the chemical proportions, twenty-four per cent., I believe it is, of water. Now, we find that in actual commercial practice in the manufacture of hydrate we have been using from twenty-five to twenty-seven per cent.; we have been getting that much water into it. On the point of seasoning we find that an essential to the making of a good hydration is the seasoning of the lime. We have found out that the seasoning is assisted by having the lime warm when it goes into the bins, and retaining the heat helps to complete hydration, and in addition to that we find, as Mr. Plummer has told me personally, he found, from his experience, that there is an equalization of the water contents by leaving it in the bins. I think Mr. Plummer will find when he comes to store his lime in bins that if it remains any length of time it will become so it won't rough.

Mr. Jackson: I have taken up the question of buying hydrated lime, I suppose, two or three times a year, and I find that, considering the amount of increase in the lime hydrated over the unhydrated, we had better buy our lime as we do now.

Mr. Field: I will say this: Our experiments on the matter have not been completed. We have satisfied ourselves, however, that we will make a better brick with a carefully prepared hydration, and one which contains only the pure ingredients; will make a brick that will hold its corners better, and they will give us very much better satisfaction in the making and one that in all respects gives us much less trouble in our plants in the matter of handling our labor. Mr. Rogers, our superintendent, is here, and he can tell you a great deal more about that than I can.

Mr. Plummer: You said it would be almost as bad to have an excess of moisture in hydration as it would be to have too little. Do you mean from the physical point of handling it?

Mr. Field: No. I mean that if you are going to store your hydrate. I am assuming now the excessive moisture in hydrates that might be purchased. If you are going to store it any length of time it has a tendency to cake.

Mr. Plummer: Would that indicate any physical change in the lime?

Mr. Field: Not that I know of.

Mr. Plummer: It would not indicate that the lime was any less valuable, but only less convenient?

Mr. Field: Yes.

Mr. Simpson: I would like to ask Mr. Field one or two questions. In the first place, before asking you, I would like to say that the point of using hydrated lime, already hydrated, is purely an economic question, purely a question of dollars and cents. I have figured it out very closely, and I find that the purchaser of hydrated lime is paying for about twenty-five per cent. of water. Now when he figures up the cost of that water it will be offset by what you pay for the labor in hydrating your own lime.

In some works that I am familiar with, one plant in particular where they use only one process, one man attends to the lime in all its stages; weighs it out, puts it into the cylinders, weighs it out and puts it into the bins in three-quarters of a day. Now, if that is the case you can readily see that the same amount of lime will cost a great deal more if you buy it hydrated.

One advantage of the hydrated lime is that you can store it and keep it without any deterioration. In fact, the ageing of hydrated lime is of benefit to it. All sand-lime brick men know that. But if you can get your caustic lime promptly and use it up promptly without very much air-slacking, why then it is money in your pocket to do so.

One question I would like to ask, that is, "What is burned lime?" You say, "Well, I guess I am burning that lime." What is the idea of that, is a question I would like to have answered.

Mr. Simpson: Burnt lime.

Mr. Field: I think Mr. Irvine would be a good one to answer that question if he has looked it up. I have seen plenty of burnt lime. I have heard lots of talk about burnt lime, and so far as I know it is simply what is an overburned lime, lime that has been exposed to too much heat or has been exposed to the heat too long in the kilns.

If you want the answer from a chemical standpoint, I am not sure, but I believe it is limestone which has been burned and reduced to calcium oxide and is again taken up and the C02 has been expelled and gone back to the calcium carbonate form. As to that I am not able to say definitely. I would rather leave that to Mr. Irvine or to the representatives of the Government.

The question about the matter of a high silica in the lime, hydraulic lime, I know nothing about from experience. All I can say is this, that, if you are buying silica, I would suggest that you buy it in general in the form of sand instead of in the form of lime; that is, mixed with the lime, if you pay the lime price, because you can buy the sand cheaper; but so far as the presence of silica in the lime is concerned, I would judge that with the process of hydration, using but little hydration, that is with little additional heat if any, that is the result of the combination of the lime with the water, I would doubt if there would be any serious trouble from the excess of silica. If, however, you are to quench that in a quenching system, and subject it to several hours' pressure in a steam kettle, I believe you would find a considerable amount of chemical combination taking place in the kettle and in the quencher between the silica and the lime, and in other words, would have a large amount of calcium silicate in the quencher which would be detrimental to your brick. I would like to hear from Mr. Irvine.

Mr. Irvine: The conversation with Mr. Simpson occurred about two years ago when he asked me that question, and as I am secretary of the National Lime Manufacturers' Association, I thought it was a pretty good thing to put in the question-box which we conducted at that meeting, so I put it in, and we had present with us a number of the world's greatest experts in the matter of lime, among them being Ernst Schmatolla, who is renowned in Germany, and whose knowledge of burnt lime has been established beyond question. He gave his answer in broken German, but it was clear to every one.

He said that burnt lime was a lime which had become an oxide, a perfect oxide, too suddenly, and by becoming an oxide too suddenly the temperature was higher than it should be when it became an oxide, and it then had such a thirst—I am expressing this in my own terms—for the carbonic gas which had been expelled from it, that instantaneously it became again carbonate.

Mr. Field: May I say that what I have said in regard to sand-lime brick is not based upon a knowledge of chemistry suitable to the occasion, because my knowledge of chemistry is very limited. I simply take it by absorption, and if I have been able to absorb correctly then my remarks may be of some value, and if I have absorbed incorrectly, my remarks might do more harm than good.

Mr. Irvine: I want to ask Mr. Field if that definition does not coincide with his experience?

Mr. Field: I cannot answer as to how it is formed, as I know nothing from experience, except I am told by the lime-burners that if they have to hold the lime in the kilns too long, subjected to too much heat, they will get burnt lime. If the lime is exposed directly to the flame or to the heat from the ovens they will get burnt lime. In other words, there is always a certain amount of burnt lime from the ordinary furnace-kiln due to the closeness of the lime to the surface, providing the lime is checked to any appreciable degree.

Mr. Simpson: What I wanted to get at is this. It is quite evident you do not understand me. You were speaking of burnt lime in a kiln, but I am speaking of a high-grade lime spoiled in the process of hydration so that it is neither good for mortar nor sand-lime brick.

My idea of burnt lime is that chemically a hydrate has got to take up a certain amount of water, which combines with the calcium oxide, and when not enough is used your lime is burnt. There is a man in Chicago that I got more information from than any one else, and I think he is right. He says that when you add a very small proportion of water to your lime to begin with, that you form a crystal around the particles which prevents the action afterwards when it is needed for the bonding of the brick. Now, it is very reasonable. It kills the lime, that is the real expression, killing the lime, and it is very necessary to know just what amount of water is to be put into either your silo or your calcium oxide or caustic lime to begin with. Now, in the silo system, how easy it is for your man not to put in enough water. I have seen it done lots of times, and it forms a condition that is very bad for the brick. Of course, it is far better to have too much than too little, although an excess will cause trouble in handling. It is a very interesting question to know just how much water to put in. Of course there is a lot of evaporation.

The other question you raised is a matter we can dismiss, as it does not affect very many of us. It affects Mr. Knapp because he is in a country where there is about twelve per cent. of silica in his lime, but excepting in Northern New York I don't know that the silica part of it gives them any trouble.

Mr. Field: Since Mr. Simpson has brought up the subject on that point, I have had a talk with our brick superintendent here, Mr. Rogers, and he says that the foreman of our lime-kiln has told him at times that when he has had trouble with his lime he thought it was in the lime, that he said the trouble was that he had not enough water, and that his hydrate was burnt. Now that was the expression. I have never heard of that before.

Mr. Emley: The lime industry has been laboring under great difficulties on account of that mixture of terms, and there has been a tendency in the last two or three years to differentiate between them by calling the one lime which has been burnt, and the other lime which has been burnt by oxidation; but the full terms should be used to explain what you mean in each case. Another way to get around that is to call the lime in the kiln burnt and the other mill-burnt lime. You got your information from Mr. Bachtenkircher?

Mr. Simpson: Yes.

Mr. Emley: I think his information on that is right. While I have the floor I have a lot of things that I want to talk to you about. In the first place, Mr. Simpson made a statement that the use of a hydrated lime, or lump lime is merely a question of economy. That is what I always thought until I came to this convention. But from information I have obtained here, I have grave doubts on the subject. The hydrated lime as it is made by the hydrated lime manufacturer is not made to be used in the manufacture of sand-lime brick, but to be used in mortar or plaster work. Consequently he makes a lime in which he tries to keep his plasticity as high as possible. You don't care anything about the plasticity of your lime. Now, in order to keep his plasticity high, he has to run his reaction through as quickly as possible; that is, he cannot afford to age his lime at a high temperature because that would decrease the plasticity of the lime. Besides that, the ordinary method of making hydrated lime is a continuous process; the lime is run through a Kritzer hydrater, it is run through a long tube and comes out a dry powder at the end. After it has gone through the machine it is screened. Well now, the ordinary hydrated lime manufacturer cannot use a wet hydrated lime because he has to screen it and cannot screen the wet material. Consequently if there is any error in the proportion of the water he uses it is always too dry and never too wet. That might be gotten around, if you don't want to go to the trouble of selecting your own lime, you can buy hydrated lime and soak in water to give it plenty of time to complete the hydration.

Some one spoke about the relation of magnesia and calcium oxide. Prof. Campbell found that if magnesia and calcium oxide is burned at 1,100 degrees Centigrade that it will be completely hydrated in two years. 1,100 degrees Centigrade is a little lower than the average temperature of the lime-kiln. Consequently it is natural to expect that where any lime is burned in an ordinary kiln the magnesia will not hydrate completely, and probably not at all in the ordinary process of manufacture. The lime men themselves agree on that. You will find a man who is making a high calcium hydrate who says his lime gains about twenty-five per cent. of water in the process. The magnesia lime only gains about seventeen per cent., which is a clear indication that the magnesia does not hydrate. In fact it is a grave question among the scientists of Germany as to whether magnesia ever does hydrate. Magnesia oxide is made up into a paste and put into a wall and carbonates without any hydration at all.

Another point that was brought out by Mr. Field was the statement that hydrated lime will keep indefinitely. That statement has been spread around the trade quite a good deal, I know, but it has not been my experience that it is true. So far as I know hydrated lime will not keep a bit better than lump lime; that is, you have to take just as good precaution to keep the air away from it as you do from lump lime, with the exception, of course, that there is no danger of fire. Now the reason that that report got started around the trade is this: In the first place when lump lime hydrates you can tell it right away, because it increases in volume and swells and falls into a powder.

If you send it to a chemist to have it analyzed, if you do not specify you want the water and carbon dioxide determined separately, they will call it all water, as if there was no carbon dioxide present. I have sent samples and had them report back twenty-four or twenty-five per cent. water, and I have had them analyzed in our own laboratory, and found that the twenty-four or twenty-five per cent. that they called water would consist of twelve per cent. water, and the other twelve or thirteen per cent. carbon dioxide. So if you are going to have any samples analyzed, you should specify that the carbon dioxide and water be determined separately. It is a longer process and it will cost you a little more, but it will pay you. In fact the ordinary method of analysis is not correct at all.

There is one other point that I wanted to bring up this morning while Mr. Simpson was talking about sand. I would like to ask if the chemical properties of sand have ever been taken into consideration in this country. Mr. Michaelis of Germany has made quite a number of tests in the use of mortar containing different kinds of sand, and he finds that by using a volcanic sand containing twenty-five to thirty per cent. silica oxide he can get a mortar that is from 100 to 200 times as strong as ordinary mortar. I would like to have a suggestion as to whether anything of that kind has ever been taken up in this country.

Mr. Simpson: This question of the action of carbonic acid in the atmosphere is always a personal one with me, and I am very glad Mr. Emley has alluded to it. Most of the German authorities advocate the covering of the well, also the covering of the bins, so as to prevent the action of the carbonic acid in the atmosphere from affecting the calcium hydrates in the siloed material. When I was a boy in Scotland I examined the Roman wall that ran from the Firth of Clyde, which was built about the time of Christ, when the Romans invaded Great Britain. That mortar was so hard you could not knock it down with a pick. It was the hardest stuff I ever saw in my life. Now, there has been an analysis of this mortar, and I wrote it down the other day, and it might be interesting in this connection to know what that is. The analysis was made by Mr. Kramer. It was a lime mortar seventeen centuries old:

Broken stone and sand	58.59	per cent.
Combined silica, soluble	.90	per cent.
Oxide of lime	.52	per cent.
Lime calcium oxide	21.34	per cent.
Magnesia oxide	.51	per cent.
Carbonic acid	15.38	per cent.
Water	2.73	per cent.

The carbonic acid feature is the part I was interested in, the absorption of the carbonic acid from the atmosphere in a long time; but I was always skeptical, and I am today, as to whether or not the small amount of carbonic acid in the atmosphere would be enough to vitiate our lime hydrate, or even our caustic lime. I would like to have Mr. Emley explain, first of all, what constitutes chemically air-slacked lime, and why it is that it is not so good to use.

Mr. Emley: In the first place, there certainly is enough carbonic dioxide in the atmosphere to destroy either hydrated lime or lump lime. I had a sample in a 40-pound paper bag shipped to me the other day, and it was on the road probably ten days before I got it. It came fresh from the hydrating machine and was a good hydrate when it left the plant. When it reached me the carbon dioxide content was ten per cent., that is, when it left it was 100, and when it got to me it was eighty per cent. calcium hydrate and twenty per cent. calcium carbonate. That carbonic acid had all been picked up from the air in about ten days.

Air-slacked lime is to all intents and purposes the same as ground limestone; because the lime has absorbed the carbon dioxide from the air and reverts to the original stone, just the same as mortar will when set up in a wall.

I would like to get an idea about this sand. As I understand it you grind your sand so that there must be enough of the fine particles to form a chemical combination with the lime. The reason for that, as I understand it, is ordinary sand is a very inactive substance chemically. But there is another physical curiosity in silica which is soluble. If you can get hold of a sand which contains a large proportion of that soluble silica it might accomplish the same effect as a finely ground sand, because getting into a fine state of division makes no more of it.

Day & Sharp of the United States Bureau of Public Roads did some work in grinding materials, and they found that by taking the ordinary sand and grinding it wet they could convert practically all of it into this soluble silica form. Grinding it dry has no effect, and I was wondering if the wet grinding would make it more active than the dry grinding.

Mr. Simpson: Why, certainly.

Mr. Emley: I believe the standard for the size of grain for the sand is fifteen per cent. of 100 mesh.

Mr. Bovy: At least twenty per cent.

Mr. Emley: I would like to hear how fine it should be ground.

Mr. Bovy: I have done considerable chemical analyzing of sand in the way of screening. I find that sand such as our bank furnishes runs about seven per cent. through 100 mesh; about twenty per cent. between eighty and 100; perhaps thirty per cent. between sixty and eighty, and maybe twenty per cent. betwen forty and sixty and the balance between twenty and forty.

Mr. Emley: How much of that sand will enter into chemical combination with your lime?

Mr. Bovy: That is something I don't know.

The lime comes in contact with all of it in the mixture.

Mr. Emley: My understanding with sand-lime brick is that it consists of sand bound together by a calcium silicate, and that would seem to infer that all the sand is not in combination with the lime.

Mr. Bovy: We pulverize a good proportion of that sand so we can get about twenty per cent. through 100 mesh. The other proportions have changed some, though not very materially; there is still quite a proportion between twenty and forty mesh.

All of this sand is mixed with mechanically pulverized lime. It is not hydrated as yet. This mixture is made by means of a tube mill; then it goes to a pug mill, conveyed through the pug mill and is dry when the mix is completed. Then water is added in sufficient quantities to hydrate the lime, then it is taken to the storage bins where it is left for complete hydration. I think that makes it clear that the lime comes in contact with all of the sand.

I think that, in one of Dr. Lazell's papers that I saw years ago, he raised a point as to the distinction between inert silica and active silica. What those terms mean as compared with soluble silica I do not know.

A Voice: Active and soluble silica is the same.

Mr. Jackson: I have been a member of this Association from the very first. As a manufacturer of brick we have been trying to get our product accepted by the United States Government. Two years ago we had a meeting at Washington and invited some of the officials to be present at our meeting. They could not be there and we went to see them.

Mr. Emley has been present at this meeting. He is connected with the Government laboratory at Pittsburgh, and he has given us some valuable information, and I believe he could be of considerable benefit to the Association. We could probably give him some information if he were a member of the Association.

I move that Mr. Emley be elected to honorary membership in the Association.

The motion was seconded and duly carried.

Mr. Emley: Gentlemen, I certainly appreciate the honor which you have bestowed upon me. I want to thank you very much for the courteous treatment which I have received at this meeting, and I appreciate the information which I have obtained here. Every question I have asked has been answered. It is a fact that the members of some associations of industries which have been established for a long time seem to be more or less tight. They are rather crabbed; they work a thing out themselves, and after they get it worked out they regard it in a way as their personal property. It is a very difficult proposition. Your industry being a new one has not yet been subjected to that, and I am glad to see the good feeling that prevails in this Convention. Every member is perfectly willing to give all his information to any other member.

Mr. Simpson: This soluble silica question is an exceedingly interesting subject. We have had it up at past conventions, but there has been no good definition of it. The way I understand it is that it is the fine, over 100 mesh, that produces the cementing action, that goes all through the particles; whereas in the coarser sand it is only skin-deep while in the finer particles over 100 mesh is a complete concoction of the calcium silica. I may be wrong, but that is the way I understand it; therefore the necessity of getting your sand down where there is an excess over 100 mesh.

As to hydrated lime made to order, the Marble Head Lime Company uses the Kritzer system. I use their lime, and I know others who use it, and it gives absolute satisfaction and it is the same lime that is shipped for commercial purposes.

Mr. Jackson: I move that the question-box be opened and that such questions as would be of interest for our next meeting be considered at that time.

President Goho: I think perhaps it had better be referred to the Secretary, and he can take up such matters as will be good subjects. And now we will hear from the Executive Committee.

REPORTS OF EXECUTIVE COMMITTEE.

Mr. Penfield: The general condition of the industry in my district is satisfactory if I may judge from reports made by individuals. One plant that suspended operations on account of financial difficulties, and one that suspended a year ago, have resumed operations, and both are good plants and will unquestionably be in good working condition when financial conditions are in better shape. From the reports we have had from the operating companies, the indication is that those who are alive this year are on a substantial basis and will undoubtedly continue to manufacture sand-lime brick as successfully as the good old clay-brick has always been manufactured through the central district.

Mr. Skeele: As for the southern district, I have indicated previously the condition of affairs in the South. There is nothing new to report. There is one new plant just erected at Albany, Georgia. One of the plants in Jacksonville has not been operated for a year, and the other is being operated in a small way, and there is a plant near Tampa that is being operated in a small way. The field is open.

Mr. Jackson: The Bond plant is running.

Mr. Bovy: The report from the South is rather discouraging. Could not Mr. Skeele give us some light on the probable cause of the bad luck of the industry down there?

Mr. Jackson: Mismanagement.

Mr. Skeele: Incompetent help, that is all. It is being changed, however. I think that plant at Albany is going to be a good plant. It is a good location, good material, and they have good men back of it.

There is nothing definite to say with regard to the prospects, only that there is great opportunity there. All that southeast coast area has excellent sand and very poor clay. It ought to be the best field in the country for sand-lime brick, as far as the market goes. Of course, the market is small compared with the more thickly populated districts of the country, but the proportion of brick that is used ought to be very largely sand-lime brick, and I think it will be.

Mr. Jackson: In and around Macon they manufacture the cheapest clay-brick in the United States. They deliver good brick on the job for $4 and $4.25, and a sand-lime brick coming in competition with it cannot exist, but outside of that the opportunity is very good, as Mr. Skeele says.

Gentlemen: Before going into the details of the sand-lime product industry, as ascertained by written canvass of all the manufactories found to exist East of the Ohio River and North of Maryland, I take the liberty of mentioning certain facts that have cropped up during this canvass.

I have found that there appears to be an inclination among the sand-lime brick makers to withhold all information regarding their own individual operations, especially among those who have not yet obtained a solid footing. It impresses me that this disinclination or distrust tends to act as a boomerang to the very ones who take such action. All being said, the sand-lime industry, irrespective of the considerable strides made in it the past few years, is still in its infancy, and every concern engaged in the industry ought to realize that publicity should be given and not withheld. It has been my personal experience that a free and open discussion of all matters relating to this product is most desirable, for it is only by that means that much can be learned. There are more systems than can be counted on the fingers of both hands, good, poor and indifferent, and a good many of us believe that we cannot better our plants, in the ignorance of not knowing that there are better systems. Frequently, the ascertaining of a condition or fact, although small in itself, may mean an increase of production or a decrease in cost of manufacture. It is these various minor items when bulked that assume big proportions in saving.

Of course, it is true in one or two instances, especially among those plants making a common building brick, that they have competitors catering to the same trade in the same locality, and in such cases we recognize the fact that it might be unwise to disclose to their competitors the figures relating to cost. In general, however, equipments are different, local conditions vary, selling prices are higher or lower, so that even a disclosure of figures may be of very little benefit to others in the trade who are inquisitive.

I claim that for many years to come there cannot be too many sand-lime brick plants. By that I mean that the growth is not apt to be so great as to create undue competition. Every sand-lime brick that is being sold reduces just that many clay-brick, whether they be common building brick, vitrified or repressed face brick. The more sand-lime brick we get into the buildings the quicker the public will realize that it is an acknowledged building material and one come to stay, especially when they realize that it fills a void, something better than an ordinary clay brick on the one hand, equally as good as the cheaper face bricks, but at considerable less cost, on the other.

All details relating to the sand-lime brick industry should be open to others in the industry, whether it be in the selection of the best sand deposit, the erection and equipment of the plant, the manufacture of the product and its subsequent sale; and I earnestly advocate the appointment of a committee whose duty it shall be to hold itself at the disposal of the members of this Association, prepared to answer all inquiries that may be put to it. If the service is of value, a small charge may be made if that is your pleasure. This committee should be selected from those members who have passed through the experimental stage, whose plants are producing steadily, turning out an acceptable building brick and presumably at a profit. Although their experience may have cost them dear, still that is no reason why they should not be willing to give others the benefit of this experience, if they will only realize that it is for the good of the trade in general.

As a member of the Executive Committee, I was given the task of ascertaining the conditions existing in the trade within that territory lying East of the Ohio River and North of Maryland. Your Secretary was kind enough to send me a list of about sixty individuals, firms or corporations presumably interested in this line of business, but after six months of voluminous correspondence, I found that nearly four-fifths of them might safely be eliminated for the reason that they were either not running this season, could not be located or absolutely refused replies to repeated inquiries, shut-down (presumably for good), were never started, are not yet completed, are not brick manufacturers, were burned out, are acting as holding Companies only, out of business, sold out to new Companies, consolidated with other Companies, moving their plants, or for sale. Of the sixty concerns fifty of them come under these various classifications.

Only nine plants report operating in 1909, one plant because of a large stock of brick on hand has not been run since 1908. Two others refuse to give the output or sales, and for that reason cannot be included in the statistical part of my report.

Of the above mentioned twelve concerns only eight report running this year (1910). One other was about to start up, and three others expressed doubt as to when they were likely to resume.

Among these plants were found various systems, one which siloed, but not employing a division method, six using the division method, five using the Komnick system, two using the Hunneckes system, three equipped with the American Clay machinery, and one with Ohlemacher machinery.

Among the presses were found five twelve-mould rotaries, four four-mould Bergs, three four-mould Whites, four Semi-steels, two six-mould Simplex and three make not given.

Among the eleven concerns who operated during the year 1909, there was found a combined daily capacity of 248,000 brick, with a daily output of approximately 200,000 brick.

Of nine concerns reporting total output and sales (two plants not giving figures), there was a combined output of 19,136,000 and a combined sales of 17,443,000 brick. More than three-quarters of this output was of what may be termed common building brick.

The selling price of common brick ranged from $5.50 to $9.00, and the average selling price was $6.70. On face brick the price ranged from $8.00 to $15.00, with the average selling price $10.40.

In answer to an inquiry as to whether or not there was difficulty in finding a ready market, five stated that they had no difficulty in selling all they could produce; whereas, six still encountered prejudice and a lack of demand.

Seven of these plants use raw lime and five hydrated lime. Eight of them screened their sand, four of them pulverized a portion of the sand. Of the eleven concerns seven of them made a few colored brick, but only when absolutely required. Ten of these plants were located on bank deposits of sand, one of them on a pit.

There were twenty-three hardening cylinders employed, four tube mills, three pulverizers, one dry pan and one wet pan.

Seven dried their sand, four of them did not.

The horse-power employed ranged from 75 to 150 H. P.

As to whether insurance rates were equitable, four claimed that they were fair, two that they were exorbitant, five refused to commit themselves.

The construction of these plants was varied; two of them were of wood and brick, six of them of wood, one entirely of brick, one of brick and concrete, one of concrete and one of steel.

Respectfully submitted,

E. M. LOEWENTHAL,
of Executive Committee.

REPORT OF AUDITING COMMITTEE FOR 1909.

ASSETS.

Dec. 6, 1909—Balance on hand	$211.10
Collected during 1910, but not including funds received at this meeting	531.13
Total	$742.23

LIABILITIES.

To Dec. 1, 1910—Sundry items paid	$704.73
Sundry items to be paid	79.59
Total	$784.32
Dec. 6, 1910—Difference, deficit	$ 42.09

WILLIAM H. CRUME,
L. W. PENFIELD,
E. M. LOEWENTHAL,

Joint Committee on Auditing and Ways and Means.

Mr. Jackson: I move that the report of the Auditing Committee be received, filed and spread on the minutes, and that the committee be discharged with the thanks of the Association.

The motion was seconded and carried.

President Goho: There was a committee on Publicity appointed a year ago. Are there any members of that committee present?

Mr. Irvine: Mr. Palmer, Mr. Plummer and myself were the members of the committee. Mr. Palmer is not here, and Mr. Plummer does not seem to be in the room just now. I will say that during the early part of the year, I took the matter up with Mr. Palmer as chairman of the committee, and that he assured me he was going to send out a circular letter to see if he could get some interest worked up in that direction. But after some correspondence it was found that it would require more money to carry out ideas than we had expected, and we finally abandoned further efforts on account of lack of funds, as we were practically all agreed that to undertake a publicity campaign, we would have to have an appropriation that would cover the necessary printing and publishing in connection with it.

President Goho: Wouldn't it be a good thing to continue this committee for another year and ask them to report back to the Association some ways in which publicity might be brought about for our trade, with some ideas regarding the probable cost, and then let us have something at the next meeting, so that we will, at least, have memoranda and data upon which we can act.

Mr. Jackson: I make that as a motion, Mr. President, and move that the committee be continued another year, and that at the next meeting they report back to the Association suggestions regarding methods for securing publicity, with the probable cost of the same.

The motion was seconded and duly carried.

Mr. Field: I think it would be an excellent idea if we could have the Association get out a leaflet or small pamphlet, just a small one, on which we could have our firm announcement on a separate sheet, and let it be stated that it is published by the Sand Brick Products. It would serve the purpose of showing the general acceptance of sand-lime brick by architects and contractors, and, I think, would be well worth while; and I do not think the expense would be so great, but that each member of the Association would buy the circular in sufficient quantities that it would not be a great expense to the Association.

President Goho: I think next year we will be able to do something tangible in that line.

Mr. Crume: We get out a circular, and we have quite a number of electrotypes; and, I think, a number of the other members have some. Why cannot we have a sort of clearing house where a man can get the different cuts he wishes without going to the expense of sending away and getting photographs and having the cuts made.

President Goho: That is the object of the Publicity Committee.

Mr. Field: I wish to say that if the Publicity Committee wishes some cuts, that I will be very glad to see that some are made of some of the buildings that we have furnished brick for, and I will loan them to the Publicity Committee for the benefit of the Association.

Mr. Jackson: We have got something like 100 different cuts. Any member of the Association is welcome to the cuts, and all I ask is that he return them.

President Goho: Mr. Loewenthal in his report made a recommendation, and he asks that the Association take some action regarding it.

President Goho here read the paragraph of Mr. Loewenthal's report, recommending the appointment of a committee to answer inquiries from members of the Association.

Mr. Jackson: I move that a committee of three be appointed in accordance with Mr. Loewenthal's recommendation, and that Mr. Emley be one of the committee.

The motion was duly seconded.

Mr. Penfield: Could not the scope of the duties of that committee be increased so as to take care of inquiries coming from others than members of the Association?

President Goho: The report says members of the Association.

Mr. Penfield: I thought he wanted to include everybody.

Mr. Loewenthal: I did not want to do that, because people who are not members of the Association should not be free to get all the information.

Mr. Plummer: I understand Mr. Loewenthal to mean that the committee would use the same discretion as any individual might; in other words, whatever went out would come from the Association instead of from an individual, and would bear more weight.

The motion was carried.

REPORT OF COMMITTEE ON NOMINATIONS.

Appointed: Messrs. Plummer, Emley and Crume as the committee.

Mr. Skeele: The Committee on Nominations feel that it is desirable at this time to make a few changes in the personnel. However, Mr. Irvine requested that his name be not used, and on some accounts we would not expect to get just the same class of service from a member of the Association that we have received from Mr. Irvine in his professional capacity.

We have decided to present the name of Mr. Plummer as secretary, and Mr. Jackson as treasurer, and the other officers to remain the same, the president and vice-president and executive committee.

Mr. Goho has requested that his name be not considered, but the ability with which he has served us for two years, and the really extraordinary character of the response that he has made, have caused us to decide that we cannot afford to get along without him for another year. Therefore, in spite of any protests, and in spite of his request, we have decided to present his name to the Convention, asking him as a special favor under the circumstances, to preside over our Association for the ensuing year at least. Therefore, we nominate Mr. Goho for President, Mr. Schultz for Vice-President, Mr. Plummer for Secretary, Mr. Jackson for Treasurer and the Executive Committee to remain the same as they were last year.

President Goho requested Mr. Skeele to take the chair.

President Goho: I would like very much, indeed, to have somebody else take the office of president. I do not wish to shirk any task you see fit to impose upon me. You have all come up so willingly and cheerfully and the responses all along the line have rung so truly, that I do not like to put in a jarring note. But I would deem it a personal favor if I could be permitted to serve in the ranks and let somebody else preside at the deliberations of this body.

When I appointed the Committee on Nominations, I made it a personal request, and I make the same request now in the Convention, that I should deem it a personal favor to be relieved.

Mr. Jackson: I hope, Mr. President, you will make up your mind to remain with us another year. We need you another year, and then if at the end of the year you so desire, we will try to relieve you. I would like to see you stay.

Mr. Skeele: I wish to say that it will be easier this year than it was last, because our finances are in better shape. We have what appears to be a deficit, but there is money enough in sight to pay all the bills, and it will not be as hard as it was last year and the year before. On that account we feel that we are more or less justified in asking this favor.

Mr. Crume: I move that the report of the Nominating Committee be accepted, and that the Secretary cast the unanimous ballot of the Association as recommended in that report.

The motion was seconded by Mr. Field, and was carried amid great applause.

President Goho resumed the chair.

Mr. Jackson: Mr. Irvine has been our Secretary for quite a long time. I dislike to see him leave, and I want to extend a rising vote of thanks to him for the good things that he has done for this Association, and I would like to see Mr. Irvine an honorary member of this Association so that he will feel that he can attend our meetings, and be one of us. I do not know what we would do if we were to look around our Convention and not see his good-natured face.

I move that we extend a rising vote of thanks to Mr. Irvine, and that he be elected an honorary member of this Association.

The motion was seconded, and was carried by a rising vote with the applause of the entire Convention.

Mr. Irvine: I want to express my heartfelt thanks, gentlemen, for this touching expression of good-will on the part of each and every one of you. For the past three or four years, I have considered you as my personal friends, and in all the correspondence and in all the labors of the Secretary's office, which have not been slight by any means, it has been a pleasure to come in contact with such a class of men as the members of this Association. Whenever any of you come past my door in Chicago, I want you to know that there is a hearty welcome inside if you will just drop in.

Mr. Jackson: I desire to make another motion, and that is that we extend a rising vote of thanks to our President for the good work that he has done.

The motion was seconded and was carried by the unanimous rising vote of the Association amid great applause.

President Goho: I thank you, gentlemen.

The next is the report of the Committee on Resolutions.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

RESOLVED, That the officers of this Association should be highly commended for their painstaking and efficient service.

RESOLVED, That the thanks of this Association should be tendered to Mr. Allen, of Toronto, for the detailed information showing costs of the manufacture of his product, and that the same is a great stimulus to the welfare of our industry.

RESOLVED, That the thanks of this Association should be tendered the Wayne Hotel for its liberal and courteous hospitality.

Mr. Jackson moved the adoption of the report of the Committee on Resolutions, and that the committee be discharged with the thanks of the Association.

The motion was seconded and duly carried.

Mr. Field: I wish to make the announcement that within the next two or three weeks, the name of our company will have been changed from the Sibley Brick Company to the Church Brick Company. It is a change in name only, the same officers remaining back of it.

President Goho: Mr. Allen was out of the room at the time the members of the Executive Committee reported. I would like to hear a word from him.

Mr. Allen: Everything in the sand-lime brick proposition is flourishing in Canada as far as I know. We have heard here in the meeting from Winnipeg, and we have also heard from far-off Victoria, and I think I can safely say that the business in Canada is flourishing from the Atlantic to the Pacific.

As far as I can learn, all who have gone into the manufacture of sand-lime brick in recent years are doing well. There were some plants installed some years ago, which had rather antique machinery, and they did not do so well for a time, but some of them have installed more modern machinery, and I think those engaged in the business generally are doing a profitable business.

President Goho: What is the pleasure of the Association regarding the place of our meeting for next year?

Mr. Jackson: Isn't that a matter to be left to the Executive Committee?

President Goho: It was last year.

Mr. Jackson: I make a motion that it be left to the Executive Committee.

The motion was seconded and duly carried.

President Goho: Is there anything more to bring before this meeting? If not, a motion to adjourn will be in order.

On motion the Convention adjourned.

F. K. IRVINE,
Secretary.